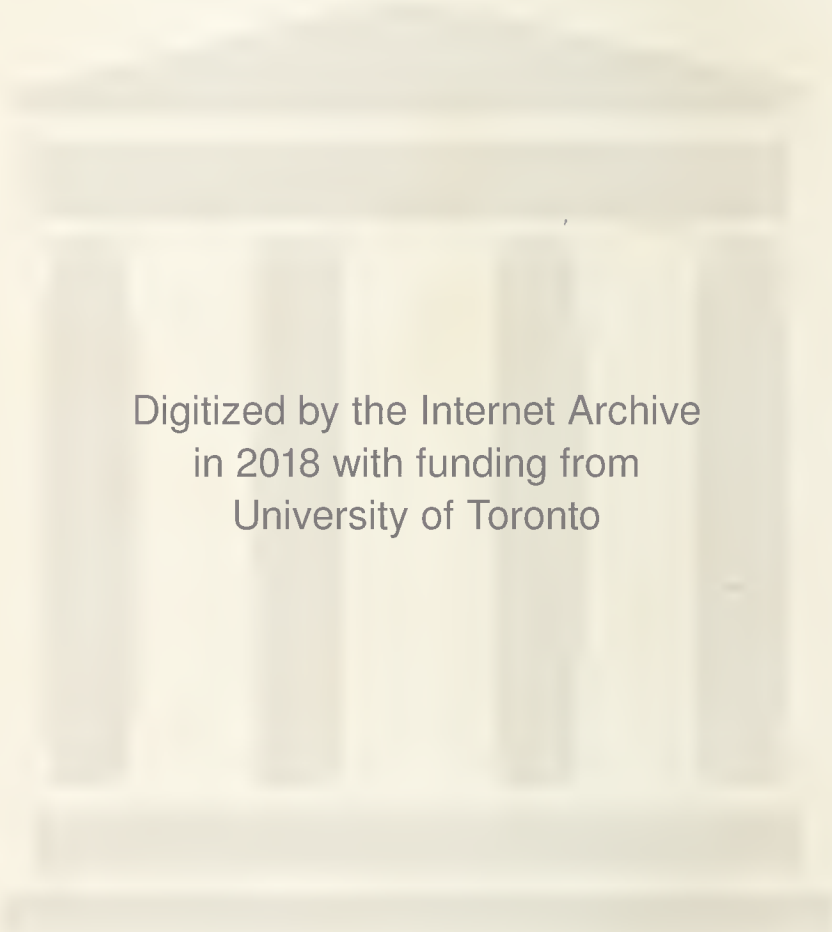




John Barker
Clare Priory
1836?



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AN
INTRODUCTION
TO
THE STUDY OF BIRDS;
OR,
THE ELEMENTS OF ORNITHOLOGY,
On Scientific Principles.

WITH
A PARTICULAR NOTICE OF THE BIRDS MENTIONED IN SCRIPTURE.

2, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

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A

POPULAR INTRODUCTION

TO THE

STUDY OF ORNITHOLOGY,

ON SCIENTIFIC PRINCIPLES.

THE science of ornithology is confessedly one of the most interesting departments of the animal kingdom, and possesses many claims upon the attention of every devout examiner of the works of the Great Creator, as well as of the general observer of nature. In whatever point the feathered tribes are regarded, whether as it respects the place they occupy in the general economy of creation, their instincts, and their habits, or as it respects their almost endless diversity, their varied forms, passing like graduated links from group to group, we are constrained to express our admiration and delight. How beautifully are they adapted for the natural station they occupy, for their instinctive habits, for filling the part allotted by the all-wise Creator! Tenants of the upper air, unlike the mammalia, from whose number the bat alone presumes to invade their realms, they soar above the earth, above its mountains and its vales; they cleave the blue sky, borne up on rapid wings, and thus transport themselves from place to place, or from one country to another, with ease and safety. Familiar with the storm, they rise till lost among the clouds; and, from their aerial pinnacle, look down upon the outspread earth, lying like a map beneath. Yet are they not confined to the realms of air alone; the earth and the waters are theirs also: some

traverse the fields, some troop around the abodes of man, some dive and sport on the billows of the ocean, some wade the treacherous morass, some scour the desert fearless of the "steed and his rider," some live among the forest branches, or the umbrageous shade of the sequestered thicket; "as for the stork, the fir-trees are her house."

Nor are they less remarkable for other characteristics of attraction. Some delight by their majestic presence: look at the eagle, proudly resting on the naked cliff; what dignity in his attitude, as, motionless like a statue, his glossy brown plumage all arranged with the nicest care, he surveys the distant prospect, while the fire of his glistening eye betrays his innate ferocity and impetuous daring; his mate is on her eyry, "she dwelleth and abideth on the rock, upon the crag of the rock, and the strong place. From thence she seeketh the prey, and her eyes behold afar off. Her young ones also suck up blood; and where the slain are, there is she." Job xxxix.

Others please us with their gorgeous beauty. Who can look upon the peacock with his plumes of azure, green, and gold, spread out to the bright rays of the sun, and not acknowledge the glory of the spectacle? Others charm our ears with melody, and fill the groves and woodlands with their song. Their melodious songs excite us to praise their and our Creator, and as they ascend upwards they seem to teach us to soar above this world, and to enforce the lesson, "Set your affection on things above—where Christ sitteth on the right hand of God—not on things on the earth." Col. iii. 1, 2. Others interest by their familiarity and confidence, their smart and lively actions.

"The redbreast

. pays to trusted man
His annual visit. Half afraid he first
Against the window beats; then brisk alights
On the warm hearth; then, hopping o'er the floor,
Eyes all the smiling family askance,
And pecks, and starts, and wonders where he is:
Till more familiar grown, the table crumbs
Attract his slender feet."

THOMSON.

Such are a few of the points of attraction which this race possesses: without expatiating further upon them, we shall advance at once to our subject.

In a work on mammalia, the study of which is necessarily an introduction to that of every other department of Natural History, it was observed (see p. 10) that Cuvier divided the animal kingdom into four great groups or sections, the first of which is that including all vertebrate animals (*animalia vertebrata*), distinguished by “an internal osseous frame-work or skeleton, which affords solidity and support. Their body is composed of a head, trunk, and limbs; the head consists of the skull, which encloses and protects the brain; and of the face, which embraces the organs of taste, smell, sight, and hearing. The head rests upon, or is attached to the vertebral column, which is composed of a number of bones moveable one on another, and forming a canal for the *medulla oblongata*, or spinal marrow. The limbs never exceed four, and are in pairs; but sometimes one pair is wanting, sometimes both. The blood is always red.”—Of this extensive section, divided into four classes, the second is that of Birds, or the class *Aves*, the subject of our present investigation.

Birds agree with the preceding class, mammalia, in breathing air, in having a double heart, and consequently a systemic and pulmonic circulation*, and in having the blood warm as well as red, that is, of a temperature considerably higher than that of the surrounding medium; whereas in the two remaining classes, namely Reptiles and Fishes, it is cold, or of a temperature merely equal to that of the surrounding medium. But birds differ from mammalia in one *essential particular*, namely in being *oviparous*; that is, instead of producing their young full formed, as do the mammalia, they lay eggs covered with a hard calcareous shell, which contain the embryo, requiring a certain degree of warmth for its

* That is, a circulation of blood through the general system, conducted by one set of vessels arising from the left ventricle, and a circulation through the lungs, conducted by another set arising from the right ventricle.

future developement, which being duly applied (and this is generally effected by the assiduous parent brooding on her nest), the young burst at length from their imprisonment, and commence a new existence.

But besides this *essential ground* of distinction, birds differ from mammalia in having the body covered with feathers, and in the anterior extremities being organs of flight alone. The aggregate of feathers which clothe a bird are termed its *plumage*, and this in its endless modifications is intimately connected with the habits and manners of the species. Hence it is that these variations are ever studied by the naturalist, not only as evidences of consummate design, but as an index of habits, and even as a clue to natural arrangement. It is easy to perceive that the plumage and habits of the feathered race have an intimate connexion, and that there must consequently be an according modification of the whole system. Look at the wavy plumes which form the wing-feathers of the ostrich: these, beautiful as they are, are the mere mockery of wings, they cannot raise their possessor to the "middle sky;" nor is it designed that they should. Its home is the desert, which it traverses with the speed of the wind; and its limbs resemble those of a horse for strength and muscle. But let us look at a bird expressly formed for rapid flight: we see its feathers close and rigid, often with a burnished metal-like surface; the wings long and pointed, the quill-feathers having acute abrupt edges and strong elastic shafts, and the tail broad, or forked, and equally firm and elastic: such, for example, is the plumage of the humming-bird, a bird which the eye can scarcely follow as it darts by like a flashing meteor. Look again at the bird of buoyant wing, of noiseless flight, the twilight prowler of the fields and woods: its plumage is full, loose, and delicately soft, offering no resistance and no sharp or rigid edges to the air, but yielding to every breath; the quill-feathers are inelastic, and the outer edge of the first, instead of being plain as in most other birds, is fringed with a finely pectinated or comblike line of short lashes, the terminations of the plumelets which compose the vane; so that,

in winnowing the air, no whistling is produced, as it is by the sharp cutting wing of the pigeon: such is the plumage of the owl. In the various tribes of birds whose home is on the ocean, we see another modification. Here the body is clothed with an inner garment of down wadded close and thick, as well for the sake of warmth as in order to prevent the water from penetrating; over this is the cloak of outer feathers, closely compacted together and varnished with an oily fluid to throw the water off, so that the body is doubly protected: such is the plumage of the eider duck. Many more examples we might bring forward to illustrate this part of our subject, for in fact almost every bird, certainly every genus, has its own peculiar style; we shall, however, content ourselves with the hints already dropped, and proceed to the investigation of the structure and mode of growth of these important appendages.

If we take up a feather and examine it, we observe that it consists of three parts; the quill or barrel, the shaft, and the web or vane. The quill is that hollow portion which constitutes the base of the feather, and forms a sheath to the vascular tissue during the exit of the feather from the skin and its future growth. The shaft consists of a white pithy substance, not unlike cork invested in a horny coat, most thick and glossy on its outer aspect, and continued from the quill. The web or vane arises from each side of the shaft, and consists of tapering flattened strips, termed barbs, approximating like the leaves of a book, and furnished at their edges with a row of minute processes called barbules. The origin of every feather is in a glandular pellicle of the skin, whence proceeds a vascular pulp or tissue, which presently becomes invested with several "layers of condensed cellular membrane, from which the shaft, the filaments of both lateral webs, the colouring matter, and the horny quill are severally produced." As the feather expands, escapes the confinement of the investing membrane, and attains its full perfection, the vascular pulp now enclosed, except at its root, by the barrel of the feather, at length dries up, and the blood-vessels become obliterated, and in this state it is the well known *pith*, which we remove from a

quill before shaping it into a pen. Young feathers, plucked before their perfect state, are always known by the vascular pulp, gorged with blood, which fills the yet soft barrel, as our readers must have often noticed. Besides the parts of a feather above described, we must not forget to notice the *accessory plume*. This, observes a learned contributor to the Transactions of the Zoological Society (see vol. i. part i. p. 13), “is usually a small downy tuft, which not only assumes a very different character in the feathers of different species, but is even very dissimilar in the feathers of different parts of the body of the same bird. The accessory plume is situated at the *distal* (farthest from the body) *end* of the quill, at the aperture through which the shaft and its lateral fibres have passed out, and at the central point from which the two lines of the web begin to diverge. In the strong feathers peculiar to the wings and tail it remains a small tuft of down, as at first mentioned; but in the feathers of the body on the hawks, grouse, ducks, gulls, and some others, it is found to be of all sizes, augmented in some species to the full extent of the feather from which it emanates. The four species of *struthious* birds afford remarkable instances of the variety that occurs in this accessory plume. In the ostrich the feathers have no accessory plume; in the rhea there is a tuft of down; in the emu the accessory plume is augmented to the full size of the principal shaft, and the web and the feather of this bird is constantly and correctly represented as having two plumes on one quill. In the cassowary, besides the double shafts and webs from a single quill, as in the emu, there is still an accessory plume, thus forming three distinct parts.”

In connexion with the plumage of a bird, is the adaptation of its anterior limbs as organs of flight: these terminate neither in hoofs nor claws; they are neither organs of terrestrial support nor of prehension; they are solely fans, with which to beat the air, and raise the body by repeated strokes. They consist in the skeleton of the *humerus* or shoulder-bone, the two bones of the forearm, namely the *radius* and *ulna*, and a part analogous to the *hand* which consists of a distinct *thumb*, and the

vestiges of two rudimentary fingers. These bones form the solid framework for the support of the large feathers essential to flight; those arising from the *hand* being termed *primaries*; those from the *fore-arm*, *secondaries*; those from the *humerus*, *scapularies*; and those from the *thumb*, the *winglet* or *bastard wing*; these last are generally only four or five, and are small and rigid. Such is the general outline of the *wing*.

The wings of a bird, however ample, would be comparatively of little service, unless the whole structure and mechanism of the frame accorded with the design for which these organs were intended. They are the organs of flight; and now let us see what correspondence we can trace in the general mechanism of the body. Let us take a pigeon, a bird familiar to us all, as an illustrative example. How beautifully boatshaped is the body, the small head and pointed beak forming the prow, and the broad expanded tail the rudder! and what shape could be found better adapted for overcoming the resistance of the air, than that which partakes so nearly of the character of the wedge? Suppose the body had been long and slender, like a snake's, where would have been that central point of gravity requisite for maintaining an even steady course? Suppose it had been round, where that power of cleaving the sky like an arrow? No shape, in fact, could be imagined as an improvement. The boat-like form, the oar-like wings, instruments at once of aerial support and progression; the rudder-like tail, increasing the relative surface of the body without adding to its weight, and acting at the same time as a helm in the hand of the pilot, combine to form a whole which all the ingenuity of man cannot improve, and which at once proclaims the architect to be Divine. But let us next suppose the skin, with its plumage removed, so as to exhibit the muscles beneath. How firm, how large, how powerful are those destined for the motion of the wings; they constitute the solid mass of the whole chest, and are more in volume than all the others put together. The chief developement of muscular power is here concentrated; and with good reason; for what does the

swift-winged bird want with a heavy mass of muscles on the thighs, or other parts? Enormous strength there, would be a useless gift, and the increase of weight would only be an impediment.

Let us next survey the skeleton; and here several points demand attention. First we notice its lightness. That this is an essential quality in a bird, will at once be understood; but how is this lightness of the bones compatible with the necessary degree of strength? Their lightness and their strength are both secured upon true mechanical principles; namely, by making all the bones, which require strength, such especially as those of the limbs, hollow cylinders; take for example a *humerus* or shoulder-bone: now if the same weight of matter which enters into its composition had been formed into a solid piece, of the same length, it would have been but a feeble lever, altogether insufficient for the strain it has to bear, and liable to snap at every stroke; on the other hand, if the bone, as it now is, had been solid, then the weight would have been objectionable; but by making it a hollow cylinder every advantage is secured; strength and lightness are combined. Secondly, the hollowness of these bones (for they are not filled up with marrow as are those of mammalia) is instrumental in another way, in rendering birds more completely adapted for their aerial mode of life. They are reservoirs for air, and communicating immediately with the lungs. The lungs of birds, unlike those of mammalia, are not floating free in the chest, but extend down the spine, to which they are attached, and fill up the hollows between the ribs at their junction with the spine: their texture is firm, and consists of distinguishable cells. But not only do these lungs communicate with and fill the hollow bones with air, but also cavities and membranous sacks, situated in some cases immediately beneath the skin on the throat, on the chest, or along the wings; in others between the muscles of the chest, and along the course of the tendons down the humerus. The design of this apparatus appears to be twofold; first, to effect a more complete aëration of the blood, as necessary to the immense comparative vigour

of the muscular system, which aëration could not be so well effected in the lungs alone, especially considering that, during rapid flight, when muscular energy is most needed and most expended, the action of breathing would be at best but imperfectly performed; and hence is this laboratory, or, in other words, this extension of lung carried throughout the body, so that the blood over an extensive surface may be constantly subjected to the mysterious agency of oxygen.

The second purpose seems to be, to increase the relative lightness of the body, in the surrounding atmosphere. The air which fills these bones and membranous cavities is necessarily rarified, so that they constitute in this respect an apparatus, analogous to a balloon, and which at least tends to the body's buoyancy.

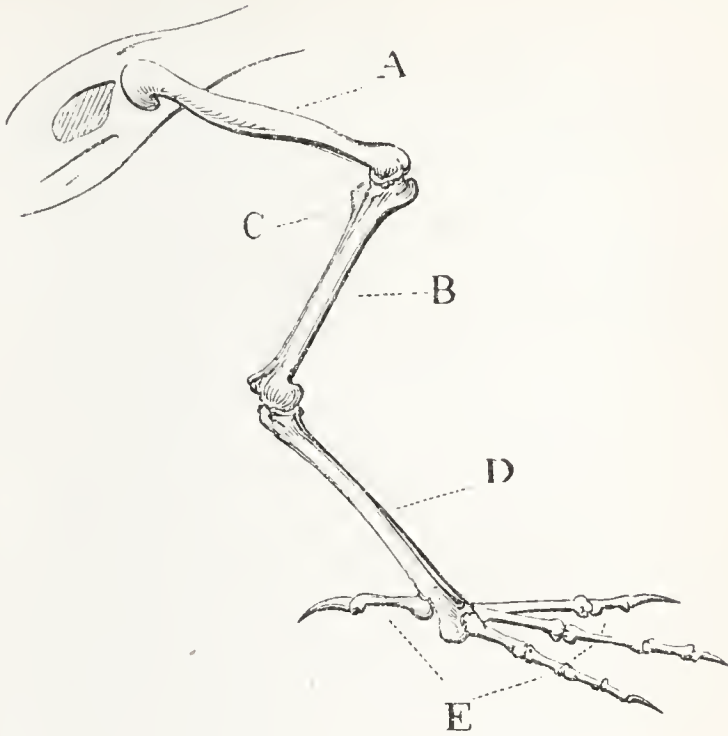
We cannot pass from the skeleton of birds without remarking on a few of its most prominent details.



The wings, as organs of flight, have already been noticed; there is, however, a bone immediately connected with their action which demands our notice; it is that

commonly known under the name of merrythought (*os furcatum*). This bone is decidedly analogous to the collar bones in man, serving to keep the scapulæ steady, and the shoulders at a due distance, counteracting the tendency to approach which the action of the wings in flight produces. The bird, however, possesses accessory clavicles, or collar bones, which are long and narrow, uniting at one end with the scapulæ, and at their point of junction assist to form the cavity into which the head of the humerus is received. The inferior limbs, or organs of progression on the earth, consist of the following parts; namely, the thigh bone, or *femur*, which is short, lies close to the body, enveloped in muscles, covered with the skin, and concealed beneath the feathers, so that it easily escapes superficial notice; hence the term thigh is often but erroneously given to the succeeding portion, composed of two bones, namely, the *tibia*, and a slight imperfect *fibula* or *small-bone*, running only two thirds the distance of the former; the union of these two bones to the femur, at the knee joint, is so managed that, by a spring-like ligament, the extension of the limb is maintained without any effort on the part of the muscles. The next part is the *tarsus* (often called the leg), which consists of a single elongated bone, covered with scaly skin alone; to its extremity are articulated the toes, upon as many pulley-like processes. The toes, in most birds, are three before and one behind, but in this respect there is much variety. Subjoined (see p. 11) is a sketch of the limb of a bird, exhibiting the bones composing it. A, the *femur*, or thigh-bone; B, the *tibia*; C, the *fibula*, which is merely rudimentary, as in many quadrupeds. In man it is perfect, and popularly known as the small bone of the leg; D, the *tarsus*, consisting of a single bone; E, the toes, generally three before and one behind. From the pelvis or hip-bone, with which the femur is articulated, arise certain muscles, the tendons of which pass by the knee and heel, and are inserted into the toes; whence the weight of the body alone firmly bends the toes, without voluntary exertion; a wise and benevolent provision of the great Creator for enabling the bird to sleep upon its

perch, rocked by the winds, without the necessity of watchful attention, in short, without any exercise of volition at all.



The body of birds is strong and compact; the ribs are firm, and possess little mobility; the breast-bone, or *ster-num*, is of considerable extent, and its surface is further increased by a large and deep keel, or projecting portion, which runs down the middle, on its external aspect. The size of the breast bone and the developement of the keel are in relation to the powers of flight, for it is on this part that the muscles of flight are situated. The neck is long, and from the number of distinct vertebræ composing it (varying from nine to twenty-three) enjoys great flexibility. The head, in comparison with the size of the body, is small; and that part which we should call the face is almost wholly occupied by the orbits of the eyes, organs which, in the feathered tribes, are very large. The jaws are extended into two projecting mandibles, covered with horn, and form what is termed the *beak*. The skull is articulated to the first vertebra of the neck by a single

point, the occipital condyle, whence is allowed the utmost latitude of rotatory motion.

Birds are either carnivorous, omnivorous, insectivorous, or granivorous, and their digestive apparatus is modified accordingly. The crop, which is a dilated sack, at the extremity of the gullet, leads by a canal into a second stomach, the commencing portion of which is surrounded by a zone of gastric glands, pouring out a solvent fluid. This portion is termed the *ventriculus succenturiatus*, and leads, in granivorous birds, into a powerful gizzard, composed of two muscles, surrounding a cavity lined with thick tough membrane; the action of these muscles is a grinding motion, with pressure on each other, like two mill-stones, and the effect is a reduction of grain and vegetable matter into a pulpy mass; but this cannot be done unless a number of pebbles are swallowed with the food, which, by the working of the muscular walls, titurate the food among them. Hence, however plentiful the food of a granivorous bird may be, if sand, gravel, or pebbles be denied, it perishes for want in the midst of plenty. In carnivorous birds, there is no gizzard, but merely its indication in the existence of fine muscular fibres.

Thus has been sketched a discursive outline of the general mechanism and structure of birds,—their feathers, their flight, their receptacles for air, their bones, and organs of digestion have been presented to our reader's notice; briefly, it is true, but still sufficiently to demonstrate the unerring wisdom and power of the great God of nature, of that God who, by stronger attractions than those of the most glorious exhibition of his power in these his lower works, by the cords of his love, has ever drawn his people, the ransomed of his choice, bought with the precious blood of his Son, to adore his unspeakable goodness—that goodness which is displayed so astonishingly in the works of nature, but still more in the works of grace. Surely we ought not to forget that he who regardeth the sparrow as it falls has numbered the “very hairs of our heads.” Let *all* his works then praise him, and chiefly

man, for whose soul God has manifested his great care and love, even by sending his only begotten Son into the world to save sinners. Surely the believer in Christ is bound by the strongest obligations to trust in the goodness of his heavenly Father.

We shall now make a few remarks on the system of arrangement which science has adopted in classifying this beautiful portion of the Creator's works.

Diversified in their forms, as in their plumage, the feathered tribes offer, especially upon a superficial examination, a maze of intricacy apparently insuperable, and which, it must be allowed, requires both patience and attention to unravel; hence the necessity of a systematic arrangement, which, the more it is constructed upon the indications of nature, and the less it is influenced by theoretical speculations, will be, at the same time, the more simple and easy of remembrance. A systematic arrangement is not, however, to be considered as the ultimate end to which the student's aim is directed, but merely as a grammar for aiding further progress,—a key to the door of the temple, the means and not the end. Since the days of Linnæus, who cleared the way as a pioneer for those who should come after him, succeeding naturalists have altered, modified, and improved the great outline which he had prepared. The *natural affinities*, which are to be traced throughout the different groups composing the class, indicating different degrees of relationship, constitute the basis upon which the *system* proceeds; still, as few persons see exactly alike, so different authors, all of distinguished celebrity, have sketched out different modes of *arrangement*, according as they have severally interpreted the hieroglyphic characters of nature. Into the merits or demerits of these arrangements we shall not presume to enter; several are very elaborate, and can only be comprehended in their full extent by professed naturalists; our object is only to prepare the way for deeper research, and to lead into the paths of science by the simplest road. In the *primary divisions*, then, we shall follow Cuvier, reserving the liberty of judgment in

the adoption or rejection of the subordinate sections ; at the same time observing that, in so wide a field, we can only hope to present the reader with general and comprehensive views.

But before we present a sketch of the plan of the great divisions, we must first state the technical names in perpetual use, applied to the different parts of birds, without a knowledge of which the description of genera or species cannot be clearly understood. In botany there is an array of nomenclature oppressive in the extreme to the learner, but which he must, nevertheless, acquire. In ornithology, the contrary happily is the case ; still, in order to make ourselves clearly understood, we subjoin the following sketch.



1. The *Beak* (rostrum) consisting of two *horny mandibles*, the upper being pierced by the nostrils, and having in some birds a membrane termed *cere*, covering its base ;

in others, bristle-like hairs, projecting forwards, so as to cover the nostrils; these bristles are termed *vibrissæ*.

2. The *head* (caput), its back part is termed the *occiput*. The space below the eye is the *cheek*, on which may be seen a tuft of feathers covering the ears, and therefore called

3. *Ear coverts*.

4. The *back*.

5. The *spurious wing* or *winglet*; it is composed of the feathers of the thumb.

6. The *wing coverts* (tectrices alæ).

7. The *greater wing coverts* (tectrices remigum).

8. The *scapularies* (scapulares).

9. The *quill feathers* (remiges primarii).

10. The *secondaries* (remiges secundarii).

11. The *tail feathers*, or *tail* (rectrices, or cauda).

12. *Upper tail coverts*, or *rump* (uropygium).

13. *Under tail coverts* (crissum).

14. *Tarsus*, and *toes*.

The remainder of the body bears the usual names, and requires no special notice.

As in the class Mammalia, so in that of Birds, the first great groups into which it is separated are termed *Orders*; of these M. Temminck makes sixteen; Mr. Vigors, in his sketches of the quinary arrangement, five; namely, Raptores, Insessores, Rasores, Grallatores, and Natatores. The second order, or that of Insessores, comprehends all the perching birds which are not true birds of prey, and unites into one two *orders* of Cuvier; namely, the Passeres (oiseaux passereaux) and the Zygodactyli or Scansores (oiseaux grimpeurs), so that the *orders*, as they stand in Cuvier's "*Regne Animal*," are six. The following is their programme—

TABLE OF THE ORDERS OF THE CLASS AVES, OR BIRDS.

I.—THE RAPTORIAL ORDER. *Raptores*. Vig.

Beak strong and hooked; talons sharp, incurved, and powerful; body muscular; appetite carnivorous; stomach membranous, with only a slight tissue of muscular fibres.

Females in general larger than the males. Toes, three before and one behind.

II.—THE PASSERINE ORDER. *Insessores*. Vig.

The characters of this order are of a negative quality, as it comprehends a vast assemblage of birds, having few tangible and prominent features in common. They are neither birds of prey, nor swimmers, nor divers, nor true climbers, nor true ground-runners; they feed according to their genera on insects, grain, seeds, and fruits, some few on carrion also. Yet is there a general resemblance of structure among them, and they pass from one group into another by insensible gradations. Every one has felt the difficulty of giving this order a characteristic name. Cuvier has called it "*Passereaux*," or *Passeres*, which has little meaning; we prefer the name of *Insessores**, as given by Mr. Vigors (though he includes under it another order, according to the arrangement of Cuvier), from their facility of *perching*, and their being so universally inhabitants of the trees. Toes, three before and one behind.

III.—THE CLIMBING OR YOKE-FOOTED ORDER.

Scansores or *Zygodactyli*.

This order forms a group or tribe of the preceding in the system of Mr. Vigors; Cuvier has retained it as independent, under the title of "*Grimpeurs*" (*Climbers* or *Scansores*), that however of *Zygodactyli*, or *Yokefooted*, seems preferable, because all the species are by no means climbers, but all are firm graspers, and have two toes before and two behind, by which the antagonizing powers on each side are equalled. Their food varies, being insects in some genera, fruit in others.

IV.—THE GALLINACEOUS OR RASORIAL ORDER.

Rasores. Vig.

Bill strong, upper mandible arched, nostrils situated in a large membranous portion at the base of the beak; toes variable, but strong, and furnished with broad nails, adapted for scratching up the ground; tarsi often armed

* *Insido*, to perch or settle. *Insessores*, perching birds.

with spurs. Food chiefly grain, seeds, and vegetable aliment, but occasionally insects and larvæ; gizzard strong and muscular; body heavy; flight slow and short. This order contains the domestic fowl, the peacock, turkey, and many more.

V.—THE WADING ORDER. *Grallatores*. Vig.

Beak generally long, but variable; tarsi long, limbs bare above the tarsal joint; toes, three before and one behind, those before being often united by a partial web, the two outer generally so; food small fish, moluscous animals, insects, and aquatic vegetables. This order contains the stork, the heron, the ibis, the plover, and many more; birds which frequent marshes, swamps, and inlets of the sea, where they seek for food.

VI.—THE SWIMMING ORDER. *Natatores*. Vig.

Beak variable; tarsi short, compressed, situated posteriorly; toes, three before and one behind, completely webbed, or fringed with an oar-like membrane; neck long; plumage thick and close; food fish, moluscous animals, grains, and vegetables; gizzard strong and muscular. This order contains the ducks, gulls, divers, and all true aquatic birds.

Such are our primary divisions or orders, in the selection of which an attempt is made to consult simplicity and the indications of nature, as far as we can read them; it must not, however, be forgotten, that the most eminent men, who have devoted their lives to this department, have differed in their systems, so difficult is it to square artificial arrangements with the blending and multitudinous affinities which nature perpetually exhibits;—so difficult is it to trace her footsteps. Let it, however, be remembered, that systems are but of second rate importance merely, and to be regarded only as aids and helps to the student, that being the most worthy of attention which unfolds most clearly the great scheme of nature.

We shall now proceed to illustrate each order separately, according as it stands in our arrangement.

ORDER I.—RAPTORES.

THIS Order contains the tigers and hyenas of the feathered race, the birds of carnivorous appetite, and rapacious habits. They possess powers and weapons adapted for their station. Their sight is powerful, in many the smell is acute, in all the flight is rapid. It is an order widely diffused (though one of its groups is confined almost exclusively to the warmer portions of the globe), and contains a numerous and interesting assemblage, bearing marked and prominent characteristics. We divide it into *three* great natural groups, termed Families: first, that of the Vultures (Fam. Vulturidæ); secondly, that of the Hawks (Fam. Falconidæ); thirdly, that of the Owls (Fam. Strigidæ).

1. FAMILY VULTURIDÆ.—THE VULTURES.

THE Vultures are distinguished by a strong but elongated bill, hooked only at its point. In the more typical forms the head and neck are denuded of feathers, a circumstance indicative of the nature of their food, which consists of putrid flesh; it is often their custom, when glutting on their foul repast, to bury head and neck in the eagerness of the moment in the putrescent mass, so that were these parts covered with feathers the utmost inconvenience would arise, from their being saturated with gore and filth, and drying into a hardened clotted layer. The skin on the breast also, over the crop, is more or less bare, being at most covered with down or short close feathers. The legs are moderately strong, but the feet are unarmed with talons formidable as in the eagle, and are incapable of lacerating a living victim, or of carrying it into the air. Indeed they seldom attempt to remove their carrion food, but remain by it for hours, or even days, until they are quite unable to fly, or to exert themselves in any way to escape an enemy. Their wings are of great length, and their flight astonishing for speed, duration, and eleva-

tion. The general plumage consists of stiff but large feathers, overlaying each other, so as to form, in some species, shot-proof armour. Round the bottom of the neck there is a ruff of soft or slender feathers, arising from loose and folded skin, within which they can withdraw the neck, and even the greatest part of the head; in this position, motionless as statues, they remain for days, when gorged with their food. Their senses of smell and of sight are in the highest degree acute; one author of celebrity, however, advances an opinion that the sense of smell is but little developed, and that it is by sight alone that the Vulture is guided to his food. This opinion, if it were true, would be a sort of anomaly in nature; for it seems a law that the main and striking quality of the matter constituting the diet of any particular animal should be that which its organs are expressly modified to receive. The far floating odours of putrid carrion are not cognizable by sight; the wild dog and the wolf and the jackal, which are among mammalia what the Vultures are among birds, pursue their food by the scent; and that the Vulture does the same has the concurrent testimony of all ages.

. “Nare sagaci
Aëra non sanum, motumque cadavore sentit.”

LUCAN'S PHARSALIA.

. “Per auras
. longè ducuntur odore
Volturii cadaveribus.”

LUCRET. DE RER. NAT.

And in addition to that of the poets we have the authority of Pliny, who, speaking of the senses in which man excels, says, “Ex sensibus ante cætera homini tactus; deinde gustatus: reliquis superatur a multis: aquilæ clariùs cernunt; *vultures sagaciùs odorantur.*” Plin. l. x. c. 69.

The part which the Vultures play in the balance of creation is at once obvious; they are a race of birds confined to the hotter portions of the old and new continents, where the toleration they experience attests the estimation of their services. As we approach the equator, we find a gradual increase in the numerical ratio of the brute

creation ; here, too, are the largest and most ponderous of animals ; the earth teems with its myriads, and mortality is of course in proportion to number. In every country dead animal matter soon decomposes, but in hot climates this process takes place with astonishing rapidity, infecting the air with insupportable effluvia. It is easy to conceive what the state of a country would be, where a multitude of animals, large and small, are from one cause or another perpetually dying, the bodies remaining to putrefy where they fall. Added to this is a singular fact, that the natives of such countries are universally inattentive to that cleanliness and those modes of purifying their towns and villages which in our civilized nations are deemed of such great importance. Under such circumstances the Vulture is invaluable : he has been in all ages the scavenger of nature, cleansing the streets and the lanes and the fields of all that is noisome and disgusting.

The typical Vultures, to which our remarks more exclusively apply, are generally gregarious in their habits, uniting in large bands or flocks, and wheeling about in the upper regions of the air, beyond the sight of man ; their “sail-broad vans” and great powers of flight enabling them, heavy as their bodies are, to maintain their elevation without apparent exertion. It has often been observed, that on the death of an ox or a horse, or any other large animal, though at the time not a wing should be visible in the glowing sky, yet, in a space of time incredibly short, multitudes will appear, assembling from various quarters of the heavens, or descending from their altitude, and sweeping down to remove what would be in a few hours an offensive nuisance. The attack begins, and the pulling and the struggling and the gorging continue, till nothing remains of the carcass but the sun-dried bones ; and these are carried off in the night by the jackals and hyenas. Flocks of Vultures frequent also the suburbs of towns and cities, where unmolested they clear the streets of offal of every description. At Cairo it is a breach of the police regulations to kill a Vulture, and in many other parts they are held in veneration. Services like these, disgusting as they may appear, are essential to the well-

being of the countries where Providence has placed them. These, however, are not all; Vultures are the constant attendants of armies on their march, or in the field of battle. In barbarous countries the horrors of war (always calamitous and revolting) are unmitigated by those usages which subsist between civilized nations, even during the strife of blood, and there is no lack of food for the Vulture. Who will volunteer to inter the corpses in the sacked villages, which unhappily lay in the route? who after the battle will bury the slain? There, as in the days of Homer, may the mangled bodies of men and horses lie “unburied on the naked shore;” but down come multitudes of Vultures, wild dogs, hyenas, and other beasts of prey, thronging to the common feast from every part of the country,—

“All regarding man as their prey,
All rejoicing in his decay.”

The Vulture is frequently mentioned in the sacred writings, and by comparing the scattered notices there, with its manners as we have endeavoured to illustrate them, it will be seen how well they agree. In Leviticus, xi. 14, we find it among the unclean animals forbidden as food to the Jews, doubtless from its impure and disgusting habits. Job alludes to its soaring flight, beyond the sphere of human vision, when he says, ch. xxviii. 7, “There is a path which no fowl knoweth, and which the vulture’s eye hath not seen.” Isaiah, in allusion to its habits of assembling in flocks, says, ch. xxiv. 15, “There shall the Vultures be gathered, every one with her mate.” In Matthew, xxiv. 28, our Saviour alludes to its gathering round the dead, to banquet, when he says, “for wheresoever the carcase is, there will the eagles be gathered together.” The term eagle, it may be observed, was an indefinite and general title for any large bird of prey; as it stands in the text, it strikingly points out the carrion-loving Vulture.

Having thus sketched a general outline of this foul-feeding *family*, it remains for us to complete the picture, by presenting our readers with a few of the principal

examples; in doing which, we shall merely glance at the generic distinctions; and we would here, once for all, observe, that the genera (or lowest groups) of ornithology are of decidedly inferior value to the *genera* of mammalia; are formed on less strict and more arbitrary principles; and are rather calculated to check than facilitate the progress of the learner; at all events, they cannot enter into the composition of an elementary treatise.

The CONDOR, (*Sarcoramphus gryphus*. DUM.) We commence by presenting our readers with a bird which to the heated imagination of the early colonists of South America equalled the celebrated *roc* of oriental fable; like that imaginary creature, it, too, was found to dwell among the inaccessible precipices of mountains, within whose mines the treasures of Mammon were buried; and, as it sailed from pinnacle to pinnacle of the stupendous Andes, it seemed to proclaim itself the guardian of entombed gold,

“ Which far
Outshone the wealth of Ormus and of Ind.”

These extravagant opinions have passed away, and we now see the Condor as it is, one of the largest of the Vulture family, it is true, but far inferior to the pictures of credulity.

The Condor belongs to the genus *Sarcoramphus*, distinguished by the fleshy caruncles or comblike appendages at the base of the beak and on the forehead; the head and neck being completely bare of feathers; this genus is peculiar to the New World, and contains not only the present, but the King of the Vultures, and several others. Though the researches of modern travellers have fairly laid open the history of this bird, yet twenty years ago one or two imperfect specimens were all the “memorials of its existence” which the cabinets of Europe contained. Hence it is no unimportant thing for the Zoological Society to possess a pair of these noble birds living in the rich menagerie, inasmuch as an opportunity is afforded to the scientific inquirer of personal inspection, as well as

THE CONDOR.



to the public, whose mistakes and prejudices it is ever important to correct. In length the Condor is about three feet six inches, and nine or ten in the expanse of wings; the body is firm and muscular, but the talons are disproportionately feeble; the wings reach to the end of the tail, and the quill feathers are peculiarly strong and springy.

The immense mountain chain, which runs down the continent of South America, is the native strong-hold where these birds dwell in security; in Peru and Chili they are even abundant, but are seldom seen in flocks of more than three or four together. There, in the regions of perpetual snow, and of terrific storms, fifteen thousand feet above the level of the sea, on some isolated pinnacle, some horrid crag, the Condor rears his brood, and looks down upon the plains beneath, yet far away, for food. Like the rest of its family, it subsists on carrion, and gorges itself to disgusting repletion, so as to become incapable of flight. In this state it is often captured, and the Indians are accustomed to expose the dead body of a cow or horse, so as to attract the notice of these birds as they are seen sailing in the sky. Down they sweep, and glut themselves with the luxurious banquet, when lo! the Indians appear with their lassos, throw them with unerring certainty, and gallop away, dragging after them the ensnared victims. These gigantic birds, contrary to what has been asserted, are far from being formidable; they are not ferocious, and their talons are too feeble to lacerate; neither can they carry away, from this cause, weights which prove no impediment to the eagle. The natives do not fear them, and are accustomed, with their children, to sleep near their resort, exposed to attack, were such ever to be apprehended. Of the strength of the Condor, and its tenacity of life, we have many authentic accounts. Captain Head relates the narrative of a struggle between one of his Cornish miners and a Condor, gorged too heavily for flight, and therefore not in the best state for the fray; the miner began by grasping the neck of the bird, which he tried to break, but the bird, roused by the unceremonious attack, struggled so violently as to render

that no easy matter ; nor after an hour's wrestling, though the miner brought away several of the wing feathers in token of victory, does it appear that the bird was dispatched. As a proof of the energy of its vital powers, M. Humboldt relates, " that, during his stay at Riobamba, he was present at some experiments which were made on one by the Indians, who had taken it alive. They first strangled it with a lasso, and hanged it on a tree, pulling it forcibly by the feet for several minutes ; but scarcely was the lasso removed, when the bird arose and walked about, as though nothing had occurred to affect it. It was then shot with three balls, discharged from a pistol at less than four paces, all of which entered its body, and wounded it in the neck, chest, and abdomen ; it still, however, kept its legs ; another ball struck its thigh, and it fell to the ground," nor did it " die of its wounds until after an interval of half an hour."

The feathers of the Condor are so close, firm, and thick, and overlap each other so regularly, as to be almost bullet proof ; indeed, unless the ball hits point blank, and at a short distance, it will not enter ; and Ulloa asserts, that eight or ten balls have been heard to strike, and glance off without piercing the body. While sailing at ease in the air, the Condor exhibits a noble spectacle of grace and majesty, which cannot be regarded without admiration. To see him on expanded wings wheeling round the topmost summits of the Andes, or sweeping down in a series of gyrations from the upper sky, each circle contracting as the earth is neared, till at last he lights upon his booty, is an imposing sight. And then follows the feast, and the full display of his extraordinary powers in tugging and rending the heavy carcass, till, satiated with his repast, he sinks into stupid inertia.

The general colour of the Condor is a glossy black, with a tinge of gray ; the quillfeathers and secondaries white, and a white ruff of downy feathers encircles the base of the neck ; this part, as well as the head, is bare of feathers, and covered with a coarse, wrinkled skin, of a dull reddish colour, verging to purplish. A large, firm comb surmounts the top of the head ; and the skin at the

occiput folds into irregular wrinkles, converging into a sort of loose wattle beneath the bill, which, as in the turkey, is capable of being dilated at pleasure. The tail is short, broad, and somewhat wedgeshaped.

We leave the Condor, in order to examine another celebrated bird of the same genus, namely, the KING OF THE VULTURES. (*Sarcoramphus papa*. DUM.) This beautiful species is a native of South America, like the condor, but is not a mountain bird; its *habitat*, in the intertropical regions of America and the adjacent islands, is among the most luxuriant scenery of nature, forests and low savannahs, where animal life abounds, and death is soon succeeded by putrefaction. The King of the Vultures is by no means so large as many, but exceeds all in the richness and elegance of its colouring. The naked skin of the head and neck is deeply tinged with mingled orange and violet; over its beak there hangs a loose comb of bright orange; the iris is pearly white. The general plumage is of a delicate fawn colour, the quill and tail feathers being black. Waterton informs us that, while sailing up the Essequibo, he observed a pair of these birds sitting on the naked branch of a tree, with about a dozen of the common species, waiting to begin the feast upon a goat, which a jaguar had killed the day before and been obliged to abandon; still, though tolerating the company of its inferiors, it appeared to guard its royal privileges with jealous care. The same gentleman relates, that he caused the body of a large serpent he had killed to be carried into the forest, in order to tempt this aristocratic Vulture to its fate, and there watched the result. “The foliage of the trees where we laid it was impervious to the sun’s rays; and had any Vultures passed over that part of the forest, I think I may say with safety, that they could not have seen the remains of the serpent through the shade. For the first two days not a Vulture made its appearance at the spot, though I could see here and there, as usual, a *Vultur aura* gliding on apparently immovable pinions at a moderate height over the tops of the forest trees. But during the afternoon of the third

day, when the carcass of the serpent had got into a state of putrefaction, more than twenty of the common Vultures came and perched upon the neighbouring trees, and the next morning, a little after six o'clock, I saw a magnificent King of the Vultures. There was a stupendous mora tree close by, whose topmost branch had either been dried by time or blasted by the thunder storm. Upon this branch I killed the King of the Vultures, before it had descended to partake of the savoury food which had attracted it to the place. Soon after this, another King of the Vultures came, and *after he had stuffed himself almost to suffocation*, the rest pounced down upon the remains of the serpent, and stayed there till they had devoured the last morsel." The King of the Vultures is rarely observed in company with more than one of its own species ; but, as we have said, is often seen surrounded by troops of common Vultures, whence its appellation.

Our next example we shall take from the restricted genus *Vultur*, the characters of which consist in the absence of fleshy caruncles on the head ; in the oblique (instead of longitudinal) position of the nostrils, in the tongue being fringed with sharp points, and several other minutiae ; it is confined to the Old World.

THE GRIFFON VULTURE. (*Vultur fulvus*. BRISS.) This magnificent species is spread from the south of Europe throughout Greece, Turkey, Persia, and Africa, everywhere taking up its abode among lofty mountain scenery. In Europe, however, it appears to be merely a summer visitant, passing over into Africa as the colder season advances ; hence at certain periods flocks of forty or fifty are seen to cross the straits of Gibraltar, many having made the rock itself their temporary residence. It is, however, most abundant in the Pyrenees, and the mountain districts of Spain, especially Granada ; it is also found in the Alps and the Tyrol. In habits and disposition the Griffon is a true Vulture ; its food is putrid flesh, and wherever the carcass is, there may these birds be seen assembled. " When once it has made a lodgment on its prey," says a celebrated naturalist, " it rarely quits the banquet while a morsel of flesh remains, so that it is not

uncommon to see it perched upon a putrefying corpse for several successive days. It never attempts to carry off a portion, even to satisfy its young, but feeds them by disgorging the half digested morsel from its maw."



THE GRIFFON VULTURE.

“ After feeding it is seen fixed for hours in one unvaried posture, patiently waiting until the work of digestion is completed, and the stimulus of hunger is renewed, to enable and to urge it to mount again into the upper

regions of the air, and fly abroad in quest of its necessary food. If violently disturbed after a full meal, it is incapable of flight until it has disgorged the contents of its stomach, lightened of which, and freed from the debilitating effects, it is immediately in a condition to soar to such a pitch, as, in spite of its magnitude, to become *invisible to human sight*."

Its nest is made in the clefts of the rock, whence it can survey the circumjacent country, and mark its mate gorging on the carcass in the distant plain.

In length the Griffon Vulture is about three feet six inches, and eight or nine feet in the stretch of its wings. The general colour of the adult is a deep rufous gray, becoming black on the quillfeathers and tail. The head and neck are not entirely bare, but are covered with short close down, which, as well as the beautiful ruff encircling the lower part of the latter, are pure white. The young birds are of a bright fawn colour, and do not acquire their mature livery until the close of the third year.

It is not by any means improbable that this species is the Vulture so often alluded to in the scriptures. At all events it is common in Judea, and agrees with the descriptions to be met with in the holy volume.

Though, as stated, the head and neck of this tribe is destitute of feathers, still there are exceptions to this rule; the following are two examples belonging to genera, one confined to the Old the other to the New World.

The PERCNOPTERUS, or Pharaoh's Chicken. The genus *Neophron*, SAV. is distinguished by a feeble, slender, elongated bill, the anterior part of the head and the throat only being denuded of feathers. The nostrils are oval and longitudinal; the tail wedgeshaped. It is to this genus that Pharaoh's Chicken (*Neophron Percnopterus*, SAV.) belongs. This bird is one of the smallest of the Vultures, being little more than of the size of a raven; it is spread over the whole of the hotter portions of the Old World, from Spain to the east, throughout Greece, the Islands of the Levant, Turkey, and throughout the greater part of Africa, abounding in immense flocks, and performing no inconsiderable part in purifying the surface of the

earth. Two birds of this species were seen in England in 1825, near Kilne, Somersetshire, one of which was shot. Capt. S. E. Cook, R. N. states that it is very abundant near Seville, following the plough like the rook, for the sake of the grubs which are turned up. In Egypt, and the adjacent countries, flocks attend the caravans on their march, for the purpose of devouring offal of every description. It appears to have been honoured as a sort of deity by the ancient Egyptians, on account of its valuable services, and is often represented on their monuments, and there still exists a feeling of respect towards it, doubtless from the same cause, for it is not only tolerated but encouraged, and moslem devotees have left bequests for the maintenance of a certain number. The plumage of the adult bird is white, with the exception of the quill feathers, which are black; the naked skin of the face and throat livid yellow. The young are of a dull rufous brown, and gradually assume the white, which indicates maturity, a period not attained until the third year.

The genus *Cathartes*, ILL. is peculiar to America, and is thus characterized; beak feeble, elongated, and curved only at the top; head and part of the neck bare of feathers, and the skin loose and carunculated. There is a tendency to a ruff round the bare space below the neck. Nostrils narrow, longitudinal apertures. Wings extend beyond the tail. To this genus belongs the TURKEY-BUZZARD, or Turkey-vulture, of America (*Cathartes aura*, ILL.) The Turkey-vulture is very extensively spread on the continent of America, being met with in high northern latitudes, and that not as a rare occurrence; in fact, it breeds in the northern forests of Canada, but appears to be, in a certain sense, migratory, passing to the intertropical regions of that vast continent with the approach of winter, where it especially abounds, and where myriads remain stationary. Mr. Waterton observes, that though flocks collect as to a common feast around the carcass, still he does not consider the Turkey-vulture to be “gregarious, properly so speaking;” that is, they do not form a colony like rooks, building in concert, and acting together, but each pair pursues its separate interests; and we suspect

this to be the case with Vultures generally, even with those which, like the present, assemble in multitudes where the banquet invites them. The same acute observer also adds that he “could never see it feeding upon that which was not putrid,” and that often when he had “thrown aside the useless remains of birds and quadrupeds after dissection, though the *Vultur aura* would be soaring up and down all day long, still it would never descend to feed upon them, or to carry them off, till they were in a state of putrefaction.” With live poultry and other domestic animals the Turkey-vulture lives upon amicable terms, without committing any hostilities; all he wants is his meal of carrion, and that there is little lack of in the regions he inhabits. The author above alluded to says, “When I carried Lord Collingwood’s dispatches up the Oronoco, to the city of Angustura, I there saw the common Vultures of Guiana nearly as tame as turkeys; the Spaniards protected them, and considered them in the light of useful scavengers. . . . They were flying about the city in all directions.” The flight of this species is peculiarly graceful and easy; its length of wing gives it the greatest facility, and it sweeps along, in alternate rises and falls, on motionless pinions.

The general colour of the plumage of the Turkey-vulture is a glossy brownish black, with green reflexions. In length it measures two feet four or five inches, and its stretch of wing is little less than six feet.

It is time, however, to pass from the present family, leaving numbers of no little interest without notice; we might bring forward the Sociable Vulture of Africa, (*Vultur auricularis*, DAUD.) the Californian (*V. Californianus*), the Pondicherry (*V. Pondicerianus*), and many others, well worthy of attention. All, however, agree in habits and disposition, and, with the exception of those points which more particularly engage the professed naturalist, one description more or less applies to the whole. Still we are not about to leave the Vultures abruptly; in nature one group ever passes insensibly, by a series of gradations or intervening forms, into that which follows, and we shall take nature as our guide.

If this opinion, then, be correct, there must be a point at which the drawing of the artificial line of separation is a matter of doubt or indifference.

The next *family* is that of the Hawks, Falcons, Eagles, &c. (*Falconidæ*), birds of fierce, rapacious habits; these disdain the putrid carcass, they abhor the loathsome repast; the food they eat is the quarry they have slain, and they devour the flesh while yet warm and quivering with life. Their powers and disposition are commensurate with each other; their beak is stout and strongly hooked, their talons are sharp and large, and their deportment is bold and free. Now between these two *families*, thus characterized, the interval is filled up by several links, and one of the most conspicuous is the celebrated LAMMERGEYER, or Bearded Vulture. (*Gypaëtos barbatus*. STORR.) The older writers on ornithology, according to



THE LAMMERGEYER.

the peculiar bias by which their views were modified, placed the Lämmergeyer respectively either among the Eagles or the Vultures, though well aware of its habits and manners. Storr, however, a naturalist of great emi-

nence, rescued it from the indeterminate situations it had hitherto occupied, and established it as the type of a new genus, to which he gave the appropriate name of *Gypaëtos*, from γυψ, a vulture, and αετός, an eagle; thereby alluding to its intermediate situation. The characters of the genus are briefly these:—the head and neck clothed with feathers; the nostrils covered with bristly hairs, which form a sort of pendent tuft or beard; the bill elongated, of moderate strength, and hooked. The tarsi short, and feathered to the toes, which are of considerable strength, and armed with true talons.

The Lämmergeyer emulates the eagle in its daring and rapacious habits; thinly scattered throughout all the great mountain chains of Europe, as well as of Asia and Africa, it is the terror of the flocks which graze on the declivities or among the secluded valleys beneath. Its habitual prey is the chamois, the wild goat, the Alpine hare, the marmot, &c.; the young, the sick, and the feeble of the larger quadrupeds are its marked victims, nor indeed can the old and vigorous always escape. Sailing in the air above the snow-clad summits of the stupendous Alps, it watches till the unwary chamois approaches the edge of a precipice, or traverses the pass of a narrow ledge, and then, sudden and impetuous as the avalanche of its native regions, down it rushes, hurling the helpless animal into the abyss below; when, proudly wheeling round for a few gyrations, as if to contemplate the effects of its sanguinary deed, it plunges down to gorge on the yet quivering flesh. It seldom attempts to carry off its prey (unless of moderate weight) like the eagle, as it does not possess the same strength of talon, but satiates its appetite on the spot: if it have young, it tears the flesh, at least of its larger victims, into fragments, and bears it piecemeal to its eyry. Though the Lämmergeyer prefers to live upon the fruits of its own rapacious prowess, still it does not refuse the putrid carrion, which, as we have seen, constitutes the food of the Vulture; it may, therefore, be often noticed sweeping slowly along the ground towards the expected banquet, where it is joined by its fellows of the surrounding district. Under ordinary circumstances, however, it

does not appear to form congregated bands, but roams for food singly, or in company with its mate alone. It is currently said and believed among the peasantry of the Alps to have carried off children to its nest. Such a circumstance is barely possible. The following remarkable instance of its boldness and voracity is taken from Bruce's account, who narrates, in his "Abyssinian Travels," that "his servants were preparing for dinner on the summit of a lofty mountain, when a Bearded Vulture, attracted by the smell of the goats' flesh which they were cooking, slowly made his advances towards the party, and at length fairly seated herself within the ring which they had formed. The affrighted natives started up and ran for their lances and shields; and the bird, after an ineffectual attempt to extract a portion of their meal from the boiling water, seized a large piece in each of his talons from a platter that stood by, and carried them off slowly along the ground as he came. After an interval of a few minutes, the Vulture returned for a second freight, but was shot by the traveller before it could carry its purpose into effect."

This bold and powerful species is the largest of our European birds of prey, measuring upwards of four feet from beak to tail, and nine or ten in the expanse of wings. The Lämmergeyer breeds on the summit of the highest and most inaccessible cliffs, making no nest, but depositing its eggs on the naked rock: they are two in number, of a white colour, blotched with brown. The general colour of the upper parts is a strong grayish brown, the centre of each feather having a white longitudinal line. The neck, breast, and under parts are white, tinged with a wash of reddish brown or orange; the tail is graduated; the tarsi are bluish gray, the iris is orange; the beak four inches in length, and of a grayish flesh colour; the bristles at its base are black, and a black band passes through each eye, and sends off a narrow line of the same colour to meet on the top of the head. The second and third quill-feathers are the longest.

Here we close our sketch of the Vultures, a family of

no trifling importance in the economy of nature. The services to which they are appointed may perhaps be revolting to the mind of the over-refined but superficial observer, who is unacquainted with the wise dispensations of Providence, by which a due balance and order in the component parts of the system of nature is ever maintained; he may regard the foul-feeding, indolent Vulture with contempt or abhorrence, not considering that its habits are well and wisely appointed by him, who has ordered all things, who has founded the universe, and whose “knowledge is past finding out.” How much more revolting to the truly philosophic mind are the habits of men who, with immortal souls at stake, riot in intemperance and gluttony, whose lives are passed in besotted licentiousness, and in the grossest vice, who in this world forfeit honour and good name, cast from them the precepts of morality and the truths of the christian’s faith, and die as they lived, in hardness and rebellion against that Saviour who is able and willing to save!

We now commence the second family of the Raptorial Order; it is that containing the most sanguinary birds of prey.

FAMILY FALCONIDÆ.

THE family designated *Falconidæ*, comprehends several subordinate groups, agreeing in general outlines, yet separated from each other by marked and essential characteristics. Taken as a whole, we may call them the lions, tigers, and leopards of the feathered race. They live by slaughter, they carry on a war of ruthless extermination, and surround their lonely nests with the relics of many a bloody feast. Their port is free and noble, their eyes piercing, their body firm and compact, their flight rapid and impetuous, their beak and talons are hooked, sharp, and formidable. They live alone, or in pairs; some on the cliffs of the seashore, some on the highest mountains, some among the secluded recesses of the woods, and some on wide heaths and moors. All are busy and active in the destruction of life. Some, perched on a rocky height, or on the topmost branches of a tree, mark their prey at a

distance, and, rapid as an arrow, launch upon the fated quarry; some skim over fields and woods, and pounce suddenly and silently upon the unsuspecting victim; they soar aloft and sweep down like a thunderbolt upon their prey while in the air, glide upon it obliquely, and thus skim it from the surface of the earth. All, however, are not equal in courage; some attack birds and quadrupeds larger than themselves, and capable of making resistance; others content themselves with feeble animals, lizards, snakes, frogs, mice, and the like. The females exceed the males in size and powers.

Many are the allusions in the Scriptures to the eagle and the hawk, having an express reference to their ferocity, power, and rapidity of flight; one of the most beautiful is in Job xxxix. 26, “Doth the hawk fly by thy wisdom, and stretch her wings toward the south? Doth the eagle mount up at thy command, and make her nest on high? She dwelleth and abideth on the rock, upon the crag of the rock, and the strong place. From thence she seeketh the prey, and her eyes behold afar off. Her young ones also suck up blood: and where the slain are, there is she.”

The subordinate groups into which we may divide the present family are, *Eagles*, *Falcons*, *Hawks*, *Kites*, *Buzzards*, and *Harriers*.

The Eagles are the largest, the most powerful, and the most destructive of the raptorial order; and their whole air and appearance are in conformity with their character. The eye is large and fiery, and meets with unquenched lustre, undimmed gaze, the blaze of the meridian sun; the sight is piercing and clear. The flight is soaring and majestic, the fatal swoop impetuous and irresistible, and the beak and talons are efficient weapons for the work of carnage. Every attitude indicates power and resolution; from the calm, statue-like posture of repose, the eye alone betraying the fire within, to the gladiator-like exhibition, when, sternly grasping the prostrate victim, the bloody feast commences.

The Eagles are subdivided into various *genera*. All

agree in the possession of the following characters. The beak is broad, straight at the base, and gradually terminating in a powerful hook. The cere is well defined, and perforated by the nostrils. The talons are strong and curved. The wings are large, spreading, and somewhat rounded; the fourth quillfeather being the longest.

The GOLDEN EAGLE (*Aquila chrysaetos*. CUV.)
This noble bird was once common in many of the hilly



THE GOLDEN EAGLE.

districts of England, and even till lately bred annually in Westmoreland, Cumberland, and the Peak of Derbyshire. In Scotland and Ireland it still frequents the mountains; and is occasionally seen in Wales. On the continent it is

extensively spread, and we have specimens from India. Wooded mountain scenery, with bold abrupt rocks, and steep craggy precipices, are its favourite abode, but it also takes up its residence in depths of extensive forests. The Golden Eagle, like the rest, is solitary in its habits, and ferocious and daring in its disposition; disdaining the loathsome repast, upon which the vulture luxuriates, it lives, like the fierce hunter of the wilds, on the produce of the chase, which, if not too large, it invariably carries to its lonely eyry, there to feast in undisturbed solitude. The larger birds, together with hares, fawns, sheep, goats, &c. constitute its prey. Its nest, composed of a bed of sticks, is placed upon the jutting ledge of some inaccessible precipice; and here it rears its young, which are usually two in number; feeding them with bleeding morsels of the yet warm victim. The destruction which a pair of Eagles occasion among the game of the surrounding district for many a league, is almost incredible. Bechstein says, that in one eyry, in Germany, were found "the skeletons of three hundred ducks, and forty hares;" and in all probability these were only the remains of such as it could take to its nest; the relics of the larger game being left after the feast, on the spot where the animals were slaughtered. There are instances, it is said, on record of children having fallen victims to its ferocity. The Golden Eagle does not appear to be confined exclusively to the older continents, as it is noticed in the *Fauna Boreali-Americana*, by Dr. Richardson, as a native of the northern portions of the transatlantic continent, where he states it to be held by the aborigines as an emblem of might and courage, the young Indian glorying in the Eagle plume as his proudest ornament. In its immature stage of plumage, which continues till the end of the third year, the basal portion of the tail, for more than half its length, is of a pure white, whence the older writers on ornithology supposed it to be a distinct species, and described it as such under the name of the Ringtail Eagle, a mistake which accurate observations have now corrected. The Golden Eagle is feathered to the toes, a circumstance characteristic of the genus *Aquila*, to which it belongs; the general colour of a rich

blackish brown; the feathers of the top of the head and back of the neck are slender and pointed, and of a golden rufous; the tail (except in immature state, as noticed above) is of a deep gray, barred and tipped with broad bands of blackish brown. Cere and feet yellow. Length, three feet, or three feet six inches; expanse of wings, eight to nine feet.

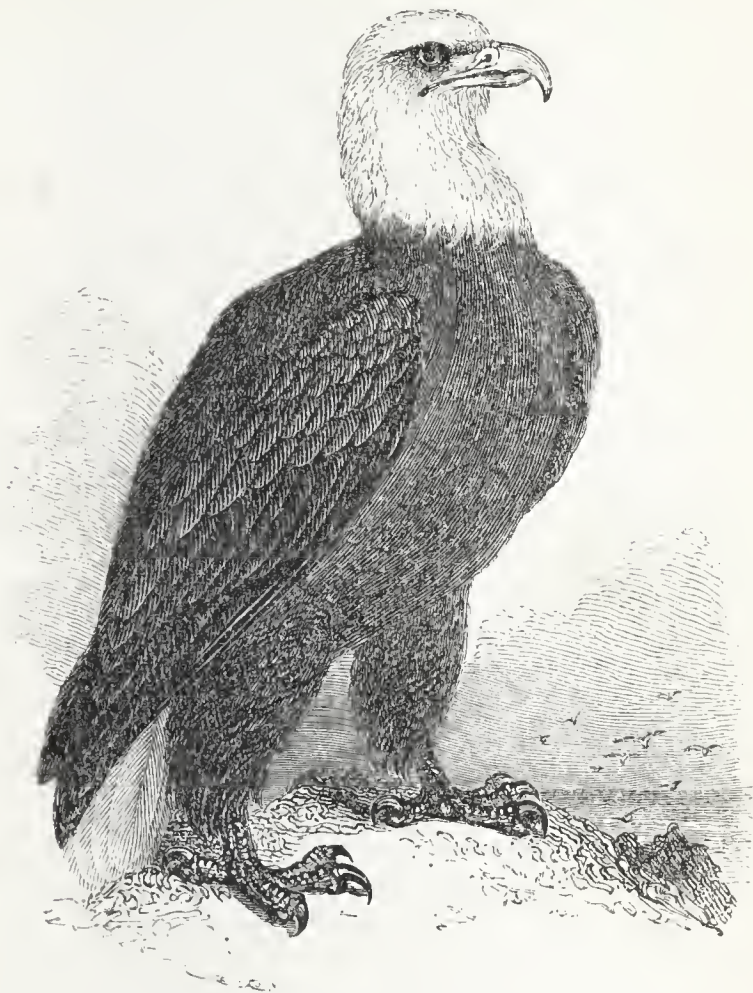
After the true or typical Eagles of the genus *Aquila*, we may notice a group allied to them in powers and daring, but differing from them in certain habits and characters, which justify a separation. The group is that of the SEA EAGLES (*Haliaëtus*), distinguished by the tarsi being destitute of feathers, and by the outer toe being capable of taking a lateral direction, or, indeed, of being almost completely retroverted; the talons are of enormous size, strongly hooked, and grooved along their under surface. "In their choice of food," also, as the talented author of the Gardens, &c. Delineated, observes, "the Sea Eagles are far less scrupulous than their brethren of the land. Inhabiting most commonly the seacoasts on the banks of the larger rivers and inlets, they make their prey chiefly of fishes and aquatic birds. These they usually carry off to devour at their leisure, either on the rocks or in their nests. But occasionally, when all other resources fail, they fix themselves upon the dead carcases of animals which are thrown upon the shore, and their manner of feeding under such circumstances closely resembles the disgusting voracity of the vultures. For hours, and sometimes for days together, they remain stationary upon the putrid carrion, and quit it only when it no longer affords the means of satiating the cravings of their appetite."

Our first example is the GREAT SEA EAGLE (*Haliaëtus albicilla*. SAV.) Of all the Eagles this bird, from the changes it undergoes in its plumage from youth to age, has been productive of the greatest confusion; so that this bird has been described under the names of the *Falco ossifragus*, *albicandus*, and *albicilla*, as three distinct birds in Gmelin; as the "petit pygargue," and again

in another stage as the “grand pygargue,” by Buffon; as the “sea eagle,” the “cinereous eagle,” and the “lesser white-tailed eagle,” by Latham, and all distinct. “In its earlier stages its beak is of a bluish horn colour; its head and neck deep brown; the plumage of its upper surface brownish black, with a mixture of whitish or ash coloured spots on the back and tail. In this state it is the *Falco ossifragus* of systematic writers. As it advances in age, about the third or fourth year, the head and neck become of an ashy brown, the beak gradually loses its bluish tinge, and changes to a pale yellow; the white spots on the back disappear, and the tail is of a uniform grayish white; this is the *Falco albicandus* of Gmelin, the Petit Pygargue of Buffon, and the Lesser White-tailed Eagle of Latham. When it has attained its fifth year, the change may be regarded as complete: the head and neck have little of the brown tinge remaining; the back is throughout of a dusky brown, intermixed with ashy gray, and the tail is perfectly white. It has now arrived at its mature state, in which it has been described and figured as the *Falco albicilla*, the Grand Pygargue, and the White-tailed or Cinereous Eagle. In all its stages the cere and under parts of its legs are yellow; the under part of the body is of a lighter hue than the upper, and more thickly interspersed with pale cinereous spots; and the claws are completely black.” Gardens, &c. *Delineated*, vol. ii. p. 35. The Great Sea Eagle is equal in size to the Golden Eagle, but not in courage and energy; it is, however, fierce and strong; inhabiting the rocks and mountains along the shores of the sea, whence it derives its chief subsistence. The nest is built either on the summit of some lofty tree, or, for want of this, on the ledge of a precipitous rock, the young being two in number. The species is spread throughout the whole of the northern parts of Europe and Asia, and is by no means uncommon on our wilder coasts. It is not a native of the American continent, its place being supplied by the

WHITE-HEADED EAGLE, (*Haliaëtus leucocephalus*,)
a bird which, in its youthful plumage, closely resembles

its relative, but which, after the third year, has the head, neck, and tail pure white, the rest of the plumage being deep chocolate, approaching black. In size, however, it is rather less, being about thirty-four or thirty-six inches



WHITE-HEADED EAGLE.

in length, and upwards of seven feet in the expanse of its wings. This noble bird is, if ever seen in Europe, to be regarded only as an accidental visitor; in America, it is spread throughout nearly the whole of the northern division, and abounds in the vicinity of the falls of Niagara, not merely for the purpose of obtaining fish, but of seizing on such unwary animals as are hurried down the stream to destruction. It is emblazoned on the national standard of the United States. The food of this Eagle consists of

fish, pigs, lambs, fawns, waterfowl, and putrid carcases. Wilson says, "We have seen the Bald Eagle," its common name in America, "while seated on the dead carcase of a horse, keep a whole flock of vultures at a respectful distance, until he had fully sated his own appetite;" and he also mentions an instance in which flocks of vultures, feeding on some thousands of tree-squirrels, drowned in attempting to pass the Ohio, during one of their migrations, were all dispersed by a Bald Eagle, who drove them from the feast, of which he kept sole possession for several successive days. The following extract is from Audubon's *Ornithological Biography of the Birds of the United States of America*. "To give you," says he, "some idea of the nature of this bird, permit me to place you on the Mississippi, on which you may float gently along, while approaching winter brings millions of waterfowl, on whistling wings, from the countries of the north, to seek a milder climate in which to sojourn for a season. The Eagle is seen perched in an erect attitude on the highest summit of the tallest tree, by the margin of the broad stream. His glistening but stern eye looks over the vast expanse; he listens attentively to every sound that comes to his quick ear from afar, glancing now and then on the earth beneath, lest even the light tread of the fawn may pass unheard. His mate is perched on the opposite side, and, should all be tranquil and silent, warns him by a cry to continue patient. At this well known call the male partly opens his broad wings, inclines his body a little downwards, and answers to her voice in tones not unlike the laugh of a maniac. The next moment he resumes his erect attitude, and again all around is silent. Ducks of many species, the teal, the wigeon, the mallard, and others, are seen passing with great rapidity, and following the course of the current; but the Eagle heeds them not, they are at that time beneath his attention. The next moment, however, the wild, trumpet-like sound of a yet distant but approaching swan is heard. A shriek from the female Eagle comes across the stream; for, kind reader, she is fully as alert as her mate. The latter suddenly shakes the whole of his body, and with a few

touches of his bill, aided by the action of his cuticular muscles, arranges his plumage in an instant. The snow-white bird is now in sight; her long neck is stretched



forward; her eye is on the watch, vigilant as that of her enemy; her large wings seem with difficulty to support the weight of her body, although they flap incessantly. So irksome do her exertions seem, that her very legs are spread beneath her tail to aid her flight. She approaches, however. The Eagle has marked her for his prey. As the swan is passing the dreaded pair, the male bird starts from his perch, in full preparation for the chase, with an awful scream that to the swan's ear brings more terror than the report of the large duck-gun. Now is the moment to witness the Eagle's powers. He glides through the air like a falling star, and like a flash of lightning

comes upon the timorous quarry, which now, in agony and despair, seeks by various manœuvres to elude the grasp of his cruel talons : it mounts, doubles, and willingly would plunge into the stream, were it not prevented by the Eagle, which, long possessed of the knowledge that by such a stratagem the swan might escape him, forces it to remain in the air, by attempting to strike it with his talons from beneath. The hope of escape is soon given up by the swan. It has already become much weakened, and its strength fails at the sight of the courage and swiftness of its antagonist. Its last gasp is about to escape, when the ferocious Eagle strikes with his talons the under side of its wing, and with unresisted power forces the bird to fall in a slanting direction upon the nearest shore. It is then, reader, that you may see the cruel spirit of this dreaded enemy of the feathered race, whilst, exulting over his prey, he for the first time breathes at ease. He presses down his powerful feet, and drives his sharp claws deeper than ever into the heart of the dying swan. He shrieks with delight as he feels the last convulsions of his prey, which has now sunk under his unceasing efforts to render death as painfully felt as it can possibly be. The female has watched every movement of her mate, and if she did not assist him in capturing the swan, it was not from want of will, but merely because she felt full assurance that the power and courage of her lord were quite sufficient for the deed. She now sails to the spot, where he eagerly awaits her, and when she has arrived, they together turn the breast of the luckless swan upwards, and gorge themselves with gore."

Fish, as we have said, forms no inconsiderable part of the diet of the White-headed Eagle ; not that he often procures it by his own honest exertions, though occasionally he manages to obtain a few in shallow creeks, but he lives by the "law of might," availing himself of the labours of others, and especially of the osprey, or fish-hawk, an assiduous and patient fisher. Wilson describes this act of marauding violence with a master's hand :—
"Elevated on the high dead limb of some gigantic tree, that commands a wide view of the neighbouring shore and ocean,

he seems calmly to contemplate the motions of the various feathered tribes that pursue their busy avocations below ; the snow-white gulls slowly winnowing the air ; the busy *tringæ* coursing along the sands ; trains of ducks streaming over the surface ; silent and watchful cranes intent and wading ; clamorous crows, and all the winged multitudes that subsist by the bounty of this vast liquid magazine of nature. High over all these hovers one whose action instantly arrests his attention. By his wide curvature of wing, and sudden suspension in the air, he knows him to be the fish-hawk, settling over some devoted victim of the deep. His eye kindles at the sight, and balancing himself with half opened wings on the branch, he watches the result. Down, rapid as an arrow from heaven, descends the distant object of his attention, the roar of its wings reaching the ear, as it disappears in the deep, making the surges foam around ! At this moment the eager looks of the Eagle are all ardour ; and, levelling his neck for flight, he sees the fish-hawk once more emerge, struggling with his prey, and mounting in the air with screams of exultation. These are the signal for our hero, who, launching into the air, instantly gives chase, and soon gains on the fish-hawk ; each exerts his utmost to mount above the other, displaying in these rencontres the most elegant and sublime aerial evolutions. The unincumbered Eagle rapidly advances, and is just on the point of reaching his opponent, when, with a sudden scream, probably of despair and honest execration, the latter drops his fish ; the Eagle, poising himself for a moment, as if to take more certain aim, descends like a whirlwind, snatches it in his grasp, ere it reaches the water, and bears his ill-gotten booty silently away to the woods."

The White-headed Eagle does not frequent bold rocky scenery, but prefers low lands along the coast or mouths of rivers, and builds invariably on the top of a tall tree, the nest being very large, and composed of sticks, weeds, moss, and similar materials. The parents are fierce in the defence of their young ; these are generally three in number, and become fully fledged before they leave the nest, and after leaving it are fed assiduously by the

parents, who procure fish and various other animals for their support, with great industry.

As the Osprey, or Fish-hawk, has been mentioned, it may not be uninteresting to enter into a few of the details regarding this singular bird.

The OSPREY (*Pandion Haliaëtus*. SAV.) is a native both of the old and new continents, being every where a bird of passage. In spring it visits the shores of the larger rivers and lakes of Russia, Germany, and the middle provinces of Europe, being by no means unfrequent in England, where, however, it is seldom permitted to remain in quiet. On the approach of winter they travel southwards. Audubon states that they show themselves along the shores of the United States, and the lakes and rivers in spring, as they are proceeding northwards; and also in autumn, when they retire to warmer climates. "At these seasons, they appear in flocks of eight or ten, following the windings of our shores in loose bodies, advancing in easy sailings or flappings, crossing each other in their gyrations. During the period of their stay in the United States, many pairs are seen nestling, rearing their young, and seeking their food within so short a distance of each other, that, while following the margins of our eastern shores, a Fish-hawk, or nest belonging to the species, may be met with at every short interval. The sole food of the Osprey is fish; unlike the rest of its tribe, though possessing formidable powers, it attacks neither birds nor quadrupeds, and even permits other birds (as the fish-crow and purple grackle) to entrench upon the outside of its nest, making it a domicile of their own. This, to be sure, is of no inconvenience, as the Osprey's nest is of immense size; it is built in a large tree, near the water, or at the edge of a wood at no distance from it, and is composed of such a mass of sticks, seaweed, grass, and other materials, as to measure often four feet across." The parent birds exhibit no less attachment to each other than to their young, which they unite in defending with the utmost fury. "The male assists in incubation; during the continuance of which the one bird

supplies the other with food, although each in its turn goes in quest of some for itself. At such times the male bird is now and then observed rising to a great height in the air, over the spot where his mate is seated. This he does by ascending almost in a direct line, by means of continued flappings, meeting the breeze with his white breast, and occasionally uttering a cackling kind of note, by which the bystander is enabled to follow him in his progress. When the Fish-hawk has attained its utmost elevation, which is sometimes such that the eye can no longer perceive him, he utters a loud shriek, and dives smoothly, on half extended wings, towards his nest. But before he reaches it, he is seen to expand his wings and tail, and in this manner he glides towards the female bird in a beautifully curved line. She partially raises herself from her eggs, utters a low cry, resumes her former posture, and her delighted partner flies off to the sea, to seek a favourite fish for her." This beautiful bird obtains its prey by hovering over the water, and plunging down, with almost inconceivable rapidity, upon such fish as approach the surface, seizing them by its immense and powerful talons, the outer of which is capable of being almost retroverted. It is able to raise a fish of four or five pounds from the water, and carry it to its nest. It is a most assiduous and successful fisher, but, as we have seen, is often forcibly dispossessed of its booty by the white-headed eagle, which is superior to it in size and strength; it sometimes, however, happens that numbers join in the common cause against the lawless marauder, and by their united forces compel him to retreat.

The plumage of the Osprey is very compact; the wings are very long, and extend considerably beyond the tip of the tail. The general colour of the upper parts is rich glossy brown; the tail being barred with alternate bands of a light and darker colour. The upper part of the head and neck are white, or yellowish white, a band of brown passing from the beak down the side of the neck. The under parts are white, with dashes of yellowish before the fully mature plumage is assumed. The length is about two feet; expanse of wings about four feet six or eight inches.

Another ferocious member of the tribe of Eagles, and perhaps the most formidable of the whole, is the HARPY EAGLE of South America. (*Harpyia Destructor*. CUV.)



THE HARPY EAGLE.

Nothing can be conceived more indicative of destructive propensities than the beak and talons of this bird, which, with the tarsi, are formed upon the most robust and powerful model. The wings are rounded, a form adapting

it rather to skim along the ground than to mount into the upper regions. From the back of the head arises a crest, composed of numerous broad feathers, of a dull black, capable of being erected or depressed at will ; the middle feathers of this crest are by far the shortest, so that when erected it forms two plumes, not unlike what is seen in the great-eared owl. The rest of the head is covered with thick, soft, downy plumage, of a light slate colour. The back, the wings, and a broad band across the chest, are grayish black ; under surface white ; tail barred ; beak black ; tarsi yellow.

Of its manners in a wild state little is known, save that it is very much to be dreaded. Hernandez states that it hesitates not to attack the most ferocious beasts, and even man. According to Mauduyt, it makes sad havoc with the poor sloths in the forests of Guiana, and with fawns, hares, and other quadrupeds, carrying them off into the densest and most secluded retreats, where it lives the lonely tyrant of the gloomy forest. Monkeys are also frequent victims to its rapacity. The Harpy Eagle is extremely rare, a circumstance by no means to be regretted when we consider its tremendous powers, and indomitable ferocity.

The BACHA EAGLE, (*Hæmatornis Bacha*, VIG.) is another of this rapacious group. It is a native of Africa, frequenting the wilds of the southern regions of that immense continent, where it is reported to prey habitually upon the Cape hyra, (or coney,) which it watches for with patience for several hours together, and darts upon the moment it issues out of its burrow.

The genus *Hæmatornis*, distinguished by sufficiently decided characters, is confined exclusively to the old world, and contains only three or four acknowledged examples ; of these, one is the present species, from Africa ; another the *H. holospilus*, from Manilla ; and a third, the *H. undulatus*, from the Himalayan mountains of India.

There is a singular genus of this tribe which claims a moment's notice, from the circumstance of its betraying

evidences of an alliance not only to the vultures but to other tribes, such, for example, as the Corvidæ, (crows, ravens, &c.) though, in the main, it is strictly raptorial. The essential characters of the genus *Polyborus* (a genus exclusively limited to America) consist in “a beak somewhat elongated, compressed laterally, of considerable depth, strongly hooked at the tip of the upper mandible, and covered at its base by a cere, thinly sprinkled with bristles, the naked membrane of which is continued over the cheeks, and surrounds the eyes; narrow, elliptical nostrils; wings nearly equal to the tail in length, of a rounded form; rather long, naked, reticulated legs; and claws of moderate length and curvature, but with little acuteness or power of grasping. From this combination of structure, it results that the birds thus characterized, although very destructive in their habits, are *incapable of a lofty flight, of taking their prey upon the wing*, or of carrying it to a distant nest. They are more *frequently seen walking*, and *walk better* than almost any other birds of prey; and have the advantage of a much more varied and extensive bill of fare than falls to the lot of the nobler species of their tribe.” Hence their generic term *Polyborus* (from Πολυς, much, and Βορᾶ, food). Of this genus the BRAZILIAN CARACARA EAGLE (*Polyborus vulgaris*) is the type. It is a voracious bird, devouring small quadrupeds, reptiles, snails, caterpillars, grasshoppers, ants, and carrion. It has been shot in the act of extracting insects from the hides of oxen, which were gladly submitting to the process. Though generally solitary, yet numbers are said sometimes to unite in hunting down prey which would be too strong for the unassisted exertions of a single one; and that in this way the rhea, or American ostrich, sometimes falls their victim. In Paraguay it abounds in incredible multitudes, and it extends as far as the Straits of Magellan. Its nest, which is large and flat, is built of sticks, on the tops of trees, especially of such as are almost concealed beneath the foliage of creepers or climbing shrubs. The young are two in number. The top of the head is black, and exhibits a slight crest at the back part; the feathers of the throat are slender and silky, and of a straw colour.

The neck is gray, with small irregular transverse bars of brown. The rest of the plumage dark brown; the tail being white, with narrow bands of brown, and tipped largely with black. Beak bluish horn colour.

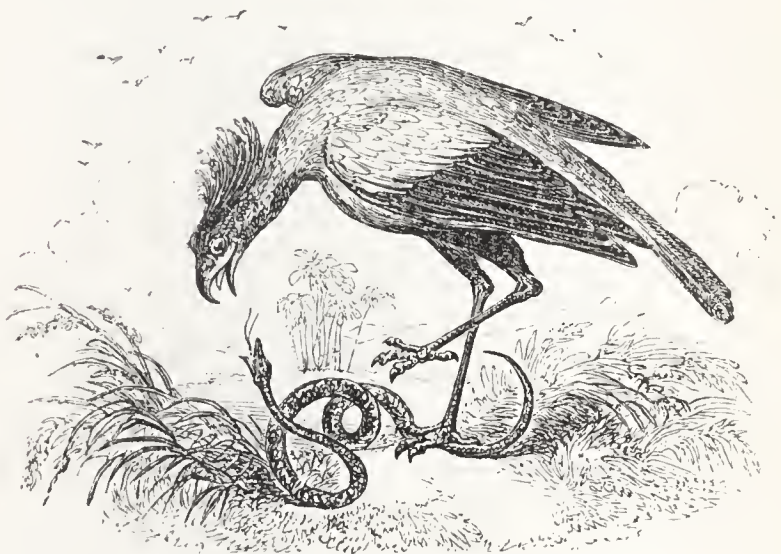
We have been more explicit than the nature of our work demands, in detailing the generic characters of the genus *Polyborus*, intending to conclude the sketch of this group by a bird which, although strictly confined to the deserts of Southern Africa, and standing, in a certain sense, isolated among the family *Falconidæ*, yet seems, in many points, to afford indications of affinity with the birds of the genus last referred to. We allude to the SECRETARY BIRD, (*Gypogeranus serpentarius*, ILL.) Some of the most eminent ornithologists of the present day have, indeed, regarded this bird as the representative of a distinct *Family* of the *Order* Raptores, of which the other members are as yet unrecognised. On the other hand, many have regarded it as a *vulture*; though it has not one feature in common with that family; it has neither their heavy make, great powers of flight, naked neck, acute sense of smell, nor carrion-loving appetite. But it seems one of those beautiful links which often unexpectedly stretch out to groups otherwise very remote in the great chain; connecting them together by the most curious affinities, and indicating the intricacies as well as the harmonies of nature. We have seen in the *Polyborus*, a raptorial bird, an adaptation to terrestrial habits; we have seen it addicted to the devouring of reptiles, such as snakes, lizards, &c. as food, which it takes upon the ground, where it walks with facility. This adaptation, still more complete, is the principal feature of the Secretary Bird, and betrays itself in the greater elongation of the tarsi, giving the bird the utmost facility of traversing the sandy deserts, or plains covered with rough and tangled vegetation, where it dwells. The form of the bill is also very similar, and similar is the extension of the almost naked cere over the cheeks and around the eyes. Granting for a moment its alliance to the genus *Polyborus*, and perhaps to others near it in the scale, to what other tribe does it offer a link of connexion? Some think to the Storks and

other wading birds; but it is the inhabitant of dry and sandy plains, and, long as its limbs are, it possesses not wading habits. May it not point to some of the rasorial birds? the long and powerful limbed Bustards, for example, of its own regions, which to vegetable food also add insects, snails, and even small reptiles; and do we not see the same development of the organs of terrestrial locomotion, in both cases, for the same end? These hints, however, are submitted with deference, from the difficulty of reading aright the more complex characters of nature.

Whatever may be the true situation in nature which this singular bird may ultimately be found to occupy, one thing is plain, that it possesses generic characters exclusively its own, warranting the formation of a genus for its reception, though of that genus it is as yet the sole example. To the genus thus allowed, Cuvier has given the name of *Serpentarius*, and Illiger that of *Gypogeranus*, from γυψ, a vulture, and γερανός, a crane, thereby indicating his ideas respecting its affinities. We do not strain at nomenclature, and therefore, as that in general use, we at once adopt it. The characters are taken from the bill, which is deep, compressed, and hooked at the tip of the upper mandible, the cere at the base extending almost naked over the cheeks; from the extraordinary length of limb, and from the shortness of the toes, which are thick, and but feebly armed with blunted claws.

The SECRETARY BIRD, (*Gypogeranus serpentarius*, ILL.) is a native of the deserts and mountain gorges of Southern Africa, where, among sandy plains, interspersed with tracts of stunted shrubby vegetation, or skirted by forests of gigantic growth, it takes up its abode, preying upon the deadly snakes and various reptiles which infest a thinly peopled region, beneath a burning sun. When standing erect, the height of this elegant bird is upwards of three feet; its gait is a singular *stalk*, not unlike that of a person elevated on stilts; its bill is sharp, and crooked; the eyes are large and prominent, but the sight is protected from the glare of intense light by a row of strong black eye-

lashes, like bristles; from behind the head springs a tuft of several elongated feathers, whence, from some fancied resemblance to pens stuck behind the ear, has arisen its common name: these feathers can be raised up at the will of the bird, so as to form a beautiful crest; the two middle tail-feathers are double the length of the others. The length of limb which the Secretary Bird possesses is



THE SECRETARY BIRD.

not only of use in enabling it to pass with facility over loose and yielding sand, and through tangled brushwood, but operates, in conjunction with its wings, as weapons of defence. From its address in destroying snakes, it is called at the Cape “Slang-eater,” or Snake-eater; and Dr. Sparrman states “that it first opposes one wing and then the other, to avoid the bite of the snake, as well as to bruise it,” it then spurns the reptile with great violence, or takes it in its claws and dashes it against the ground so forcibly, as often to kill it at a single attempt. Dr. Solander has seen the bird thus instantaneously destroy a snake or tortoise. To do this the more effectually, the Secretary has the power of striking or kicking forwards with its leg, so that with the blow it throws its adversary before it, thereby securing the advantage of keeping the

foe ever in its sight, and of being prepared to receive and parry its attack. It finishes the dying struggles of its victims by crushing the skull with its sharply pointed bill. Its utility in thus waging a continual war of extermination upon a race of noxious reptiles have secured it universal goodwill; and it has even been introduced into Martinico, for the purpose of destroying the venomous snakes which infest that island. By the colonists at the Cape it is sometimes kept tame, mixing with the poultry on a very friendly footing, and rewarding its masters by an incessant warfare against the whole tribe of reptiles, rats, locusts, and large insects. In its wild state it is by no means shy or timid, but hops leisurely away on its long legs; or if pursued runs with great swiftness, but does not readily take to the wing. It is not gregarious, but lives in company with its mate alone; its nest is built on the top of tall trees; the eggs are two in number, as large as those of a goose, and spotted with reddish brown. The general colour of the Secretary is light gray; the quill-feathers and secondaries are black, as are also the thighs, and the crest-feathers; the two long middle tail-feathers are gray, becoming black towards their extremities, and ending in a white tip, as do the rest of the tail-feathers, which are otherwise black.

Here may be closed this sketch of the Eagles, a race whose destructive propensities, like those of the lion and tiger, are at first apt to shock our conceptions of order and harmony. A little consideration, however, will serve to convince that all is appointed for the best, and that one race of beings must necessarily be created as a check upon the inordinate increase of another. Perhaps on the whole, nay certainly, man suffers less from the ferocious than from the timid. What injury hath the lion and the wolf and the eagle done him, compared with what he has suffered from the locust and the caterpillar, from the lemming and the hamster, nay, from the very rats and mice that overrun our barns and granaries? And so should we find it to be the case with others, were it not

for the due adjustment of the balance the Almighty fiat has appointed. And such, when his eyes are opened, will the perplexities and mysterious dispensations of Providence appear to the christian, when all that he deemed confused and purposeless shall appear harmonious and good.

The *Falcons* constitute the next group for our consideration. They are distinguished by the following characters: beak short, strong, abruptly hooked, the upper mandible being armed with a projecting notch or tooth, thus



evincing a certain analogy to the large canine teeth of the carnivorous mammalia. Wings very long, and pointed, the second quill-feather being the longest. Tarsi of moderate length, but stout, the toes powerful, and armed with large, sharp, retractable claws. Food always living prey, which is taken on the wing.

Though inferior in size to the eagles, the genuine Falcons are no less daring and ferocious; indeed, allowance being made for their smaller bulk, they are proportionately more bold and spirited. Expressly formed for rapid flight, they dart upon their prey with arrow-like velocity, striking it to the earth with a blow. The length of their wings renders their progress through the air smooth and even, but diminishes the power of ascending perpendicularly, so that when they rise, instead of mounting like a lark, they

sweep upwards in a spiral manner, describing a series of the most beautiful gyrations; and this is one of the circumstances which renders the attack of the trained Falcon on the heron so interesting: the heron, with its huge round wings, mounts up into the sky, its foe striving to rise above (in order to make the swoop) by wheeling round and round till both are mere specks in the blue vault of heaven. The Falcon in its upward flight is much aided by going against the wind, and by this mode it can sweep in a straight line at once obliquely upwards.

The muscular powers of these birds are very considerable, their bodies being compact, and the bones are firmly knit together. Their plumage is close and smooth; and their whole contour exceedingly graceful. The head is indeed peculiarly beautiful, as well from its symmetry, as from the dark expressive eyes, glancing with fire and animation, which indicate their prompt and daring spirit.

Birds constitute their chief prey; these, as we have said, they take while on the wing, and if not too heavy, grasp them in their talons, and carry them away to their retreat.

The above observations are, however, to be considered as characteristic only of the group of Falcons termed *noble*; for there is an inferior grade of Falcons, which are not only less in size than their more daring congeners, but far inferior in spirit and energy. The food of these consists of small birds, frogs, mice, and the larger insects, which latter they dart after from their perch on the bough of some tree, and being successful return to it again. Of the nobler grade, the species were all highly valued in the days of falconry; of the latter no use could be made whatever. In writers of the "olden time," where we continually meet with expressions borrowed from pursuits or arts then in vogue, the term "gentle falcon" often occurs, and is no doubt familiar to many of our readers. The term "*gentle*" has no relation, as some might imagine, to the disposition of the bird, but to its being reclaimed, and duly trained for falconry. The first example of the *noble group* of Falcons is one which is still

in use by those who keep up the almost exploded art of falconry, it is the

PEREGRINE FALCON, (*Falco peregrinus*.) The Pe-



THE PEREGRINE FALCON.

regrine Falcon, in Europe at least, is, as its name implies, a bird of passage, retiring southwards from the higher latitudes on the approach of winter. Its favourite breeding place is on the steep and inaccessible rocks of a rugged coast. Hence, though not so abundant as in former days, when protected by severe penalties, they are found plentifully in Wales, Scotland, and the Isle of Wight; indeed at the latter place they breed annually near the Needles, and make terrible havoc among the puffins and razor-bills which tenant the same locality. They are also often killed inland, and it is said that numbers take up their temporary residence on Westminster Abbey, making sad slaughter among the flocks of tame

pigeons in the neighbourhood. In Germany, France, and other parts of the continent, the Peregrine Falcon is common; it is also spread through the mountain districts of Asia; and in North America is the terror of the wild fowl, and often the annoyance of the sportsman. The courage, power, docility, and swiftness of this bird rendered it a favourite in the days of falconry, when the “hawk on



FALCONING.

fist” was an indication of rank; and its training for the chase was an important duty. When young it was called an “*eyess*,” a corruption of the French word *niais*; it was also often called *red hawk*, from the colour of its plumage during the first year; when wild and untamed it was named a *haggard*; the male bird was termed a *tiercel*, *tersel*, or *tassel*. The game at which it was flown were herons, cranes, wild ducks, &c.; these it took by

soaring above them, and then making its *stoop*, that is, darting down impetuously upon them, and bearing them to the earth with irresistible violence.

The Peregrine has received various appellations, such as the "Slight Falcon," the "Passenger Falcon," and many others; in America it is termed the Duck Hawk, and also the Great-footed Hawk, from the size and strength of its talons. Audubon says, "The flight of this bird is of astonishing rapidity. It is scarcely ever seen sailing, unless after being disappointed in its attempt to secure the prey which it has been pursuing, and even at such times it rises with a broad spiral circuit, to attain a sufficient elevation to enable it to reconnoitre a certain space below." "The search is often performed with a flight resembling that of a tame pigeon, until perceiving an object it redoubles its flappings, and pursues the fugitive with a rapidity scarcely to be conceived. It follows and nears the timorous quarry at every turn and back-cutting which the latter attempts. Arrived within a few feet of the prey, the Falcon is seen protruding his powerful legs and talons to their full stretch. His wings are for a moment almost closed; the next instant he grapples the prize, which, if too weighty to be carried off directly, he forces obliquely toward the ground, sometimes a hundred yards from where it was seized, to kill it and devour it on the spot." Ducks which have been struck down by it have been observed to have their backs lacerated the whole length by the blow of its talons. The appearance of this hawk strikes universal panic among the hordes of water-fowl, all are eager to escape their dreaded foe, "all speed to the water, and there remain till the hawk has passed them, diving the moment he comes near them. It is worthy of remark, that he will seldom if ever strike over the water, unless it be frozen, well knowing that it will be difficult to secure his quarry." Audubon states that he has seen this bird "come at the report of a gun, and carry off a teal not thirty steps distant from the sportsman who had killed it, with a daring assurance as surprising as unexpected;" and that this conduct is a notorious characteristic of the species. Like all the tribe, this bird

undergoes successive gradations of colouring before attaining that which may be called mature or permanent. When young its plumage on the back inclines to rufous, the middle of each feather only having a tint of deep bluish ash, the under parts being white, with brown longitudinal dashes; in the disposition of the markings the young and old agree pretty closely. The colouring of the adult may thus be described. Head and back of the neck blackish lead colour, which colour as it passes over the back assumes a paler and more ashy tinge; below the eye there extends a large triangular mark of dark lead colour, pointing downwards, and commonly called the *moustache*; it is a common feature in many of the species of this genus. The throat and breast are white, with a few slender longitudinal dashes of brown; the under parts are dirty white, with fine transverse bars of brown. The tail is alternately banded with bluish gray and black; beak lead colour; tarsi yellow. Length of the male sixteen inches; of the female eighteen.

Another noble bird of this genus is the ICELAND FALCON, (*Falco Islandicus*, LATH.); also called the Jer-falcon. When in mature plumage, it is white, with bars, and barb-shaped dashes of brown, which become more and more obliterated with age, though they are seldom or never wholly lost. The plumage of the first year on the upper parts is of a uniform dull brown, the head, the neck, and all the under parts being marked with broad longitudinal dashes of brown, edged to a greater or less extent with dirty white. Its synonyms are multitudinous, for in different stages of plumage it has been mistaken for as many species; and even now there exists a doubt with many whether the Jer-falcon is not distinct from the Iceland: we ourselves have conversed with professional falconers from the continent, who have assured us that such is the fact, adding, that in flight and the mode of making the stoop there is a decided difference. They observe, for instance, that the Jer-falcon is commonly obtained in Norway, whereas the true Iceland falcon is not to be met with in that country; that the admeasure-

ments of the tail and wings differ, and that they require different systems of training, the Iceland bird being more intractable than the Jer-falcon of Norway, but of higher



THE ICELAND FALCON.

courage and more bold and rapid flight, and consequently when trained much more valuable. Its gyrations are said to be wider, its mount higher, and its stoop more grand and imposing. After all, however, the difference, granting these statements are to be relied on, may be that of *variety*, and not of *species*. The Jer-falcon is larger than the peregrine, the length of the male being one foot nine or ten inches; of the female, two feet two or three inches. Of all falcons it was the most celebrated in falconry, and a “cast of Norway hawks” was accounted a gift fit to be presented to a king. Its native country appears to be within the higher latitudes and arctic regions of the northern hemisphere. In Iceland it is especially

abundant, breeding among the most steep and inaccessible precipices, and preying habitually on the larger kinds of birds, as ducks, geese, grouse, and others.

Latham observes that this species has ever been in much estimation for its use in falconry, and that “Iceland has the reputation of furnishing the most generous breed. The king of Denmark is said to send there annually to buy up all that can be procured, the established place being Bessested, to which the Icelanders bring them as soon as taken, the white ones being most in esteem; and they must be very docile, for they catch them in nets of any size or age.”

Though the Jer-falcon is chiefly confined to the higher northern latitudes, still there are instances of its having bred in the Orkney and Shetland Isles; and it occasionally wanders into England and Wales. As it respects its habitat in the American continent, Dr. Richardson informs us that it is a constant resident in the Hudson’s Bay territories, where it makes great havoc among plovers, ptarmigans, ducks, and geese.

To this section also belongs the MERLIN, (*Falco æsalon*,) which, though one of the smallest, is also one of the boldest of its race, attacking with undaunted courage birds far superior to itself in size and weight; and so rapid is its sweep, so resolute its onset, and so certain its aim, that it has been known to strike a partridge dead with a single blow. It skims like a swallow over the ground with surprising velocity. In the British Isles it is a winter visiter. The general plumage of the young is brown; when fully adult, the back and wings are of a bluish ash-colour, each feather having a central dash of black; under parts rufous, with oblong blackish spots. Length of male only eleven inches; of female, twelve inches and a half. It was much valued in the days of falconry.

Of the inferior grade of falcons, distinguished not so much by inferiority of size as by a slighter contour of the body, we may instance the KESTREL, or Windhover,

(*Falco tinnunculus*,) a species common in every part of England, and spread over the whole of Europe and the adjacent parts of Asia and Africa. It is that *hawk* which we so often see hovering in the air over some local spot,



THE KESTREL.

and then either rapidly sweeping down or sailing away on smooth pinions for a certain distance, and repeating the same manœuvre as before. It is in fact at that moment on the search for prey; and while thus hovering, fixed over one spot, it is intently surveying the ground beneath; not a frog, not a mouse, not a lizard, not a lark on her nest can escape the scrutiny. Unlike the nobler falcons, it seldom pounces upon its prey in the air, but picks it up from the ground, and carries it off to its retreat. It is timid and devoid of energy, seldom venturing to attack birds as large as itself, but contenting itself with smaller game. When taken young, it is easily tamed, but the old birds are very intractable. That birds bearing the name of falcons should prey to a considerable extent on insects may sound a little strange, yet such is the fact with the falcons of this grade; dragon-flies, May-flies, and similar insects, forming no small portion of their diet.

Perhaps the Kestrel preys less on them than do some of the rest.

The Kestrel breeds on rocks, towers, and trees; where it can seize upon the deserted nest of a crow or magpie, it builds none for itself; and on the bare ledge of a rock makes but little preparation. The young are from three to five in number.

This is an elegantly marked species; the ground colour of the upper surface is of a fine rufous brown, each feather having at its tip a barb-shaped spot of black; the head is gray, with black longitudinal dashes, as is the chest and under parts on a reddish white ground; tail bluish gray, with a black band at its extremity, and tipped with white. The female is duller in colour than the male, and more thickly barred with black, the feathers of the shoulders and back having triangular markings; the tail also, instead of being bluish gray, is brown, with bars of black. Length of the male twelve inches and a half; of the female fourteen inches.

Another specimen of this group is the HOBBY, (*Falco Subbuteo*,) which in colouring is a close representation of the peregrine falcon, but not in spirit. The Hobby is a timid bird, preying to a great extent upon dragon-flies and large insects, after which it darts from a bough where it sits perched in expectation of its ignoble game, and to which it returns after each successive chase. It does not however appear to search for frogs and mice like the kestrel, but limits its destructiveness to finches, larks, and small birds in general, which its rapidity of flight well enables it to pursue. It is by no means uncommon in well wooded districts, where it builds on lofty trees; the eggs are three in number, dotted with brownish olive on a bluish ground.

The Hobby is undoubtedly a bird of passage, quitting Europe during winter, and returning in the spring. It is said to have been trained in former times to hover over flocks of larks so as to prevent their rising while the falconer drew his net over them. Its size is about that of the kestrel.

To both grades of falcons we might add numbers more, not only European, but from every other part of the world; our object is not, however, to swell the list of examples, but to give clear ideas of general groups, so that the student may trace an extended outline, rendered clear and intelligible by illustrations as well chosen and as well described as our efforts can effect. Nor is this all; while examining the works of the Almighty we must not forget that we are examining the works of a Parent; of that Parent who by his infinite grace, through the atonement of Christ, has manifested his mercy to mankind. The christian impressed with love to God, for his perfections, and his “one great gift,” the gift of a Redeemer, looks with peculiar delight upon nature, for there too he sees the glories of his Father and his God.

The tribe of *Hawks* is distinguished from falcons by the following particulars. The bill, though strong and abruptly curved, wants the tooth, so remarkable in the upper mandible of the previous section; the wings are short, extending no farther than two-thirds of the length of the tail, and the fourth quill-feather is the longest; the tarsi are in most instances long and slender. The reader may perhaps consider these as trifling grounds of distinction; but such is not the case, for on these differences an entire alteration of habits and manners depends: so that the naturalist has but to see a bird of either tribe pass on the wing to know to which it belongs, and consequently its general history. The short and rounded wings of the birds of this tribe prevent them from sweeping through the higher regions of the air in wide circles, and from precipitating themselves on their prey like lightning from the clouds; and the elongated tarsi forbid the fatal blow which hurls the victim lifeless to the earth; yet are they birds of daring and sanguinary habits, as much so as the boldest falcons, but they take their prey differently. Instead of soaring aloft, they dart like an arrow down hedge-rows, through woods and coppices, through glens and ravines, and, coming upon their prey unawares, pounce upon it sideways or obliquely; if aware of their approach,

it endeavours to escape, they follow it with determined pertinacity; and such is their swiftness in flight, that they seldom give chase in vain. Thus they take their prey on the wing, and, having struck their victim, they gripe it in their keen talons, and bear it away to the solitude of their retreat.

Of this tribe one of the most beautiful is the GOSHAWK, (*Astur palumbarius*, BECHST.), a bird from its spirit,



THE GOSHAWK.

powers, and docility, much valued in the days of falconry. It always takes its prey in the air, darting upon it with exceeding rapidity, but without the so much admired *stoop* of the falcon. Should the quarry be driven to covert, it ceases pursuit, but waits in patience on some perch at hand till the game again takes wing or flees from its lurk-

ing place ; in this way it will remain hour after hour on the watch ; and an instance is recorded of a Goshawk which drove a pheasant to cover one evening, and remained stationary till “ ten the next morning,” when, on the falconers taking her away, the poor pheasant, which all that while had not dared to stir, but had remained as if chained to the spot, at once took wing and fled.

The Goshawk is distinguished by great beauty of colour and elegance of shape ; its form, though compact, is long and slender ; its eye is bright yellow, full, and large ; and the talons are strong and sharp. In England it is now very scarce. On the continent it is spread through most parts of Europe, especially wooded mountain districts. It is common in France, but more so in Germany, Switzerland, and Russia, where it frequents the deep solitudes of the pine-forests, preying habitually upon hares, squirrels, and the larger kinds of birds. It builds in lofty trees ; the eggs, three in number, are bluish white, blotched and barred with brown.

The upper parts are of a bluish ash-colour ; the lower surface is beautifully spotted and dashed with narrow longitudinal marks, and transverse bars of brown on a white ground. The tail is ash-coloured barred with brown ; the beak bluish ; the cere yellowish green ; iris and tarsi yellow. The female has the upper surface tinted with brown instead of being pure bluish gray. The length of the male is nineteen or twenty inches, of the female twenty-three or twenty-four.

North America produces an allied species distinguished alone by a darker colour on the head, by a greater multitude of zigzag lines and dashes of brown on the under parts, and by its somewhat superior size. It was met with by Dr. Richardson in the Hudson's Bay territories, and is figured in the “ Fauna Boreali-Americana.”

From Australia we receive a beautiful Hawk of this tribe of a pure unspotted white, (*Astur albus*, SHAW.) It is said to exhibit all the rapacity of its congeners ; but we know little of its history.

To this tribe also belongs the SPARROW-HAWK, (*Accipiter fringillarius*, RAY,) a small but vigorous and daring persecutor of the feathered race. Rapid, quick-eyed, and impetuous, it follows its prey, undaunted even by the presence of man, from whom the terrified fugitive has sometimes been known to claim that succour which the exigency of the moment demanded; and often has the dove rushed into the house, there to seek protection, and followed by its unrelenting foe. Of the rapidity and suddenness with which the Sparrow-Hawk makes its attack, the author once witnessed a remarkable instance. Walking along a tall hedge-row, which divided some fields, in one of the richest parts of Cheshire, his notice was attracted by a song bird, (probably a linnet,) which, not ten yards distant, perched upon a topmost twig, was pouring forth its “native wood-notes wild” in all the ecstasy of nature; rapid as an arrow something flashed by; the bird had ceased its song; it was already far away, grasped in the talons of the dreaded Sparrow-Hawk.

This fierce little hawk is spread over the whole of Europe, as well as Asia and Africa; it is not however very common, and is often confounded with the kestrel by those who are not acquainted with the subject. It frequents woods and coppices, building in trees, and making great havoc among small birds, quails, doves, and even partridges.

The male is considerably less than the female, being barely twelve inches in length; the upper parts are bluish ash-colour; the throat and chest rufous, which breaks into obscure bars as it proceeds to the under surface; tarsi yellow; beak black. The female is fifteen inches in length; the upper surface is of a browner tinge than in the male, and the throat and under parts are white, the former having small longitudinal dashes of reddish brown, the latter regular transverse bars of the same colour.

The young differ considerably, in having the general plumage brown, the back of the neck and the scapularies being blotched with white; and the under surface yellowish white, with irregular longitudinal dashes of brown.

The next tribe which claims our notice is that of the *Kites*, distinguished by the following characters: a compressed and feeble beak, obliquely situated nostrils, tarsi very short, and feathered to the toes, wings of exceeding length, but rounded, the fourth quill-feather being the longest, the first very short; tail forked.

The birds of this tribe are remarkable not so much for the rapidity as for the grace and ease which they display in their aerial evolutions. Sailing on outspread wings, of great extent and breadth, they sweep through the air in wide circles, often mounting to such a height as to become nearly invisible. The fullness of their plumage, and especially the breadth of their forked tail, tend materially to the body's buoyancy. Unlike the fierce falcons and hawks, these birds are of a cowardly disposition, seldom attacking any thing capable of resistance; indeed, there is something vulture-like in their appetites, as well as in their mode of flight, for they refuse not garbage and carrion, though they habitually prey on small animals, as moles, frogs, lizards, and young poultry. They do not pounce upon their prey while in the air, but skim it from the surface of the earth, and bear it off in their talons, before it is aware of their almost noiseless descent.

The example here selected as illustrative of this tribe is the COMMON KITE, (*Milvus iclinus*, SAV.) This well known bird is common not only in England but in most parts of Europe and the adjacent districts of Africa. It may at once be discriminated from every British hawk by its peculiar and graceful mode of flight; whence the provincial name of gled, or glede*, in allusion to its gliding along on pinions outspread, but motionless. The appearance of the Kite, however, is by no means hailed with pleasure, as, wheeling about with eyes intent upon the young broods which tenant the farm-yard, it attracts the notice first of the full grown poultry, who set up a universal scream of execration, and next of the farmer himself, who, anxious for the fate of ducks and chickens destined

* From a Saxon verb, whence our modern verb *to glide*.

for market or for his own spit, prepares his rusty gun to give the intruder its deserts. Should the Kite perceive how the matter stands, it wheels off in widening circles



THE COMMON KITE.

till out of danger ; should all be safe, after a few gyrations, down it sweeps, scattering confusion among the astonished broods, from whose number one is borne away screaming in its claws. If once successful, it is sure to repeat the visit ; so that it not unfrequently happens that brood after brood is materially thinned in its numbers before the spoiler's outstretched wings decorate the barn-door, near the scene of his nefarious exploits.

In addition to young poultry, the Kite preys on moles and frogs ; and Latham states that an instance was known of twenty-two moles having been found in one Kite's nest.

It also preys occasionally on carrion, and has been seen to skim off dead fish and offal floating on the surface of the water with singular dexterity.

The Kite is partial to open downs and hilly districts, skirted with woods, to which it can retreat for security and the purpose of breeding. The nest, built in the forked branches of a tall tree, is composed of sticks and twigs, and lined with wool, and often rags or other soft materials; and the most secluded part of the forest is its chosen asylum. The eggs are three in number, and of a bluish white, with a few brown blotches.

The male and female differ little either in colour or size. The whole of the upper surface is of a reddish brown, each feather having its edge of a lighter tint. The feathers of the head and neck are long and pointed, of a dull grayish white, with longitudinal streaks of dusky brown; the under surface is rust colour, inclining to yellowish, with longitudinal dusky spots; the tail is of great extent, being twelve inches long, and much forked; it is of a bright reddish brown, with obscure dusky bands. The feathers of the thighs are long and loose; the toes are bright yellow. Length, two feet two or three inches; expanse of wings, five feet and a half.

The Kite is only once or twice noticed in the scriptures, and that as being among the birds unfit for food. See Levit. xi. 14.

From the kites we pass on to the tribe of *Buzzards*, a slothful and inactive race, but possessed of considerable bodily powers. The beak is comparatively small and feeble; the tarsi variable, but generally short, and in some instances covered with short feathers to the toes; the wings are of considerable extent and rounded, the fourth quill-feather being usually the longest; the tail square or moderately rounded. The buzzards, or those at least which are truly contained in this section, are remarkable for a subdued and timid spirit: theirs is neither the bold deportment nor the daring energy which distinguishes the falcons or hawks of an equal or even inferior magnitude. They soar not aloft, nor sweep down like a thunderbolt

upon their prey, nor dash at it obliquely with an arrow-like precision; they sail not over wide tracts of country, hunting for it with eager scrutiny, but sit patiently upon their perch in the dense umbrageous gloom of the wood, watching till the snake or the lizard, or the rat or the frog shall appear, or the beetle shall flit by; on swift but steady wing they glide upon their booty, and return with it to their accustomed perch. Their flight is easy and undulating; though the body is stout and heavy.

As an example, we select the COMMON BUZZARD, (*Buteo vulgaris*.) In most wooded portions of England,



THE COMMON BUZZARD.

and over the whole of Europe, the Buzzard is one of the commonest of the birds of prey; but its courage and

energy are by no means equal to its size. Sluggish and inactive, it seldom hunts abroad unless pressed by hunger; it may then be seen sailing in easy undulations over the fields adjoining to the wood where it habitually resides. Its most common mode, however, is to sit on some branch commanding a view of the neighbouring lands, and slide silently upon its victim. Moles, rats, sometimes young rabbits, frogs, and insects, are its chief subsistence; and the time at which it is most active in quest of its food, is, if our own observations are a criterion, after the heat of the day, or even toward evening; we have, indeed, seen it, when almost dusk, flitting over fallow land bordered by woods. The Buzzard seldom troubles itself to make a nest, but contents itself with a deserted crow's or magpie's, which it enlarges if necessary. The eggs are three in number, of a dull white, slightly blotched with brown. If the Buzzard is ever furious, it is in defence of its young; and as its strength and size are very considerable, its homestead is not to be assailed with impunity. Though not so long as the kite, the Buzzard is larger and heavier; its general length is one foot eight or ten inches: in colour it is subject to great variation, no two individuals exactly coinciding in their markings. The upper parts, however, are usually of a deep brown; the inferior of a yellowish white, with brown or reddish stains and dashes; the tail barred; beak, lead colour; cere, iris, and feet, yellow. It is noticed in the Fauna Boreali-Americana as an inhabitant of the high latitudes of America, having been seen by the "expedition as far north as the 57th parallel of latitude, and has most probably a still higher range."

The HONEY BUZZARD, (*Pernis apivorus*, CUV.) belongs also to this tribe. The genus *Pernis*, of which it forms the type, is at once recognised by the close thick velvety feathers which occupy the space between the beak and eye, a space in all the rapacious tribes besides, destitute of feathers, but clothed partially with long hairs radiating from a central point.

This singular bird, though far from common in England,

occurs perhaps more frequently than is supposed, its general resemblance to the common buzzard leading to a mistake as regards its real difference. In the south and eastern parts of Europe it is much more abundant.

The Honey Buzzard derives its name from the partiality it evinces for bees, wasps, and their larvæ, as food; not that it does not also prey upon small quadrupeds and reptiles, but not when these are to be obtained.

Willoughby observes, "that it builds its nest of small twigs, laying upon them wool, and upon the wool its eggs. We saw one that made use of an old kite's nest to breed in, and that fed its young with the nymphæ of wasps; for in the nest we found the combs of wasps' nests, and in the stomachs of the young the fragments of wasp-maggots. There were in the nest only two young ones, covered with white down, spotted with black. Their feet were of a pale yellow; their bills between the nostrils and the head white; their craws large, in which were lizards, frogs, &c. In the crop of one of them we found two lizards entire, with their heads lying towards the mouth, as if they sought to creep out."

In the Magazine of Nat. Hist. vol. v. p. 280, is a notice of one of these birds which was shot in Tendring Hall Park, Suffolk, in 1831. "The person who killed it saw it first on the ground; there were several wasps' nests near the spot. On dissecting it, I found a quantity of wasps and nymphæ from the comb both in its craw and stomach, with a few small beetles." "It would be highly interesting could we be made acquainted with the manner in which this bird conducts the attack on a wasp's nest." "The hawk, in order to get at the comb, must in some way enlarge the entrance: the legs and claws of the bird I have described were very dirty even to the knee, most likely from searching much on the ground for food, and using them in making an entrance into the wasps' nest." The close feathering round the base of the bill is in all probability intended as a protection against the stings of these insects when seized and in the act of being crushed between the mandibles.

The Honey Buzzard is a bird of passage, emigrating

from Europe on the approach of winter. It is about the size of the common buzzard, but rather more slender; the crown of the head is of a pure bluish ash-colour; the upper surface deep brown inclining to grayish. The secondary quill-feathers are barred alternately with dusky brown and gray; under surface whitish, with triangular reddish bars or dashes; tail crossed by three bars of dark brown. Length nearly two feet.

Of the buzzards having tarsi clothed with short close feathers to the toes, the ROUGH-LEGGED BUZZARD, (*Buteo lagopus*, LIN.) is the most familiar example. This bird is spread throughout most parts of the globe: though only an accidental visitor in England, it is far from being uncommon in the northern portions of the continent, where, as in America also, it is a bird of limited migratory habits. Its plumage is full and soft, a circumstance which, with its feathered tarsi, noiseless buoyant flight, and habits of coursing over swamps and meadows in pursuit of prey even after sunset, allies it to the owls. The third quill-feather is the longest.

Wilson (see American Ornithology) informs us that the Rough-legged Buzzard is common during winter in the lower parts of Maryland, and numerous in the extensive meadows below Newark, New Jersey. It appears that this bird, like the common buzzard, is in the habit of watching for its prey for hours together, and sliding with a circuitous course upon the first unlucky frog, mouse, or lizard that makes its appearance. Head, upper part of the neck, throat, breast, and thighs, pale rufous, or reddish white, regularly marked with longitudinal brown streaks; upper surface almost chocolate colour, each feather having a reddish margin; a broad girdle of dark brown passes across the lower part of the body, just below the breast, and extends from wing to wing. Tail pale rufous, verging into deep brown at its extremity. Length about two feet. The nest is built in lofty trees of sticks and twigs.

The last section or tribe of the present family is that of the *Harriers*. The harriers are distinguished from the

buzzards by their thin and elongated tarsi, their slender form of body, and their lengthened tail. The third quill-feather is the longest; the texture of the plumage is soft and loose, and especially full around the face so as to form a sort of ruff approaching to the disc, so conspicuous in the owls. The beak is small and compressed.

The harriers are more active and more constantly on the wing than the buzzards; they frequent low and marshy grounds, where they generally build, concealing the nest near the sides of lakes or morasses, among the reeds and ozers which luxuriate in such situations. Their flight is easy, graceful, and buoyant, but not rapid; nor do they soar to any height, but, like a spaniel, quarter the ground (skimming near the surface) with great diligence in search of snakes, lizards, frogs, and other reptiles, on which they chiefly prey, seizing the victim with their sharp claws as they pass. Young birds are also sometimes destroyed, especially coots and water-hens.

The first example is the MOOR HARRIER, (*Circus aeruginosus*, BECHST.) The changes which this bird undergoes in its plumage, according to age, has led to many mistakes, each stage having given rise to the supposition of a distinction of species. These errors are now corrected.

As its name implies, the Moor Harrier frequents heaths and wild marshy lands, being very common in Holland and in many other parts of Europe, and not unfrequent in the British isles. Its usual mode of pursuing its prey is by skimming the ground and dropping suddenly on it; frogs or other reptiles, as well as small quadrupeds, such as moles, mice, and young rabbits, are thus unexpectedly seized by this silent-winged marauder. It builds its nest in tufts of grass, fern, or bushes; the eggs being three or four in number, of a plain white. When fully adult, its colour is as follows: head, neck, and breast, pale dull yellowish, each feather having a central streak of brown; upper surface brown, the quill-feathers being white at their origin and black for the rest of their length; secondaries and tail-feathers of an ashy gray; under parts rufous,

marked with yellowish dashes ; beak black ; cere greenish ; tarsi yellow ; length one foot seven or eight inches. During the first year the general plumage is of a deep choco-



THE MOOR HARRIER.

late, the feathers of the wing-coverts, quills, and tail being tipped with light brown ; the top of the head and the throat being of a yellowish brown. From this stage the transition is gradual to that of maturity.

The next example is the HEN-HARRIER, (*Circus cyaneus*.) The difference which age produces in the plumage of the Harriers in general does not, in the present example, end here ; for it exists to such an extent between the two sexes, as to have caused them, until very lately, to have been considered as distinct species ; the

female having obtained the name of the Hen-harrier, and the male that of the Ringtail. The Hen-harrier (the name now retained) is universally spread over Europe; it occurs also in some parts of Africa, and of North America; everywhere restricting itself to low, flat lands, moors and heaths. In its manners it has all the characters of its tribe. Dr. Richardson (see *Fauna Boreali-Americana*) observes, that it is a “common species on the plains of the Saskatchewan, seldom less than five or six being in sight at a time, each keeping to a particular beat, until it had completely examined it. Their flight was in general low; but though Mr. Drummond and I watched them for hours at a time, and lay as still in the grass as possible, they invariably rose out of gunshot as they passed over our heads, and the specimens were procured only by lying in ambush near the nest. Notwithstanding they appeared to be almost constantly on the wing, we seldom saw them carry any thing away; and they seemed on the whole to be less successful hunters than the little *Falco sparverius*, or the lazy buzzards, that sat watching for their prey on the bough of a tree. A small green snake is very plentiful in that quarter, and forms a considerable portion of the food of this bird, whence its Cree name of the ‘Snake Hunter.’ The nests that we observed were built on the ground, by the sides of small lakes, of moss, grass, feathers, and hair, and contained from three to five eggs, of a smaller size than those of a domestic fowl, but similar in shape, and having a bluish white colour, without spots.”

Colour of adult male: head, neck, and the whole of the upper surface of a bluish gray, verging into black on the quill-feathers; tail feathers gray, tipped with white; tail coverts and whole of the under surface white. Bill black, iris and tarsi yellow. Length, one foot six inches. Colour of adult female: upper surface, dull brown, the feathers of the head and neck being edged with rufous. Under surface of a reddish yellow, with large brown longitudinal dashes; the quill-feathers are barred externally with brown and black, internally with white and black. Tail coverts white, with streaks of red. Two middle tail feathers barred with black and ash colour, the others with reddish

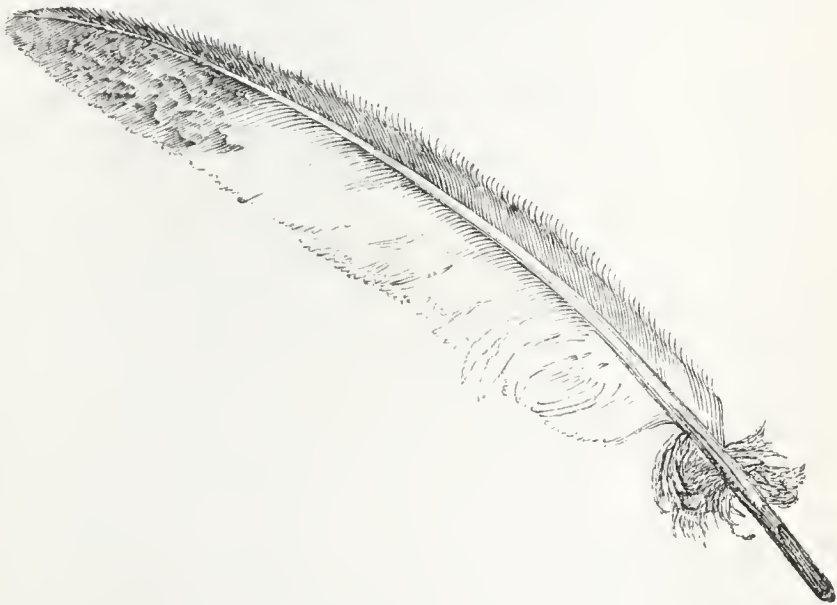
yellow and black. Length, one foot eight inches. The young of both sexes, though much more dull and indistinct in colour, resemble the female; and it is not until after the second year that the males begin to assume their characteristic dress, which is a gradual process, and not perfect till after two or three successive moults.

And now let us pause, to contemplate the rapacious family, in the illustration of which, necessary to its being correctly appreciated, we have so far endeavoured to select both striking and interesting examples. The various groups comprising it are all ferocious, all bloodthirsty, and differing more from each other in powers and courage than in innate propensities. They have their appointed work; omnipotence and wisdom are in the dispensation, which creates and destroys. To their bloody deeds, and ferocious appetites, no moral guilt attaches; no retributive justice follows their work of slaughter. Well would it be were man content to be a spectator of this scene of carnage, and reflect upon it, as a dispassionate observer of the works and ways of Almighty Wisdom, without attempting to show how much superior he can be in all the arts of cruelty, to the most ferocious eagle or bloodthirsty falcon, how much he can outdo them in deeds of blood. Man is the quarry of his fellow man; and history furnishes us with little else than a successive catalogue of crimes of every description. Nathan's parable to David, applicable as it is to every species of fraud, injustice, and oppression, is no less just than true when applied to the conduct of the world at large; but the world mocks at the application. It says the field of battle is the field of honour; fraud and oppression are the ways to wealth, the paths of vice are the paths of pleasure: such is its language—such is the language of men, who, unlike the bird or beast of prey, have immortal souls, from which will be exacted an account “of the deeds done in the body.” A thinking being, looking thus on the state of mankind, would say, “The world is dead;” and so says the scripture, “—dead in trespasses and sins.” This moral, this spiritual insensibility, is, indeed, at the root of every evil, and it infects the whole

of the human race ; so that whosoever thinks he is without sin “ deceiveth himself.” This state of the human race, in which God might have suffered it to remain unprovided for, had he pleased, is not without a sufficient remedy ; God, in mercy to lost and ruined man, has provided a Saviour, in the person of his Son Jesus Christ, who, “ for us men and our salvation,” “ bore our sins in his own body on the tree,” and became “ a ransom for transgressors.” And that Saviour has said, Whosoever believeth in me shall not perish, but have everlasting life. If we believe in him, we shall, in some humble measure, be transformed into his likeness, the lion will then become a lamb, the eagle a dove ; and cruelty and crime will no longer appear in their meretricious dress, or false colouring, but be regarded alike as odious in aspect, and as intrinsic evils before the Almighty Judge. We trust our readers will excuse this digression, from which we return to our subject.

The last family of the *Raptorial Order* is termed *Strigidae* ; it comprehends the Owls, those plunderers by night, those stealthy assassins, whose success depends on their silence and insidious habits. Destined to lead a life of nocturnal violence, it will be interesting to observe how well their instincts and their structure correspond. The beak and talons of the Owls at once determine the great order to which they belong. The former, though concealed by the margin of the disc, or circle of feathers on each side radiating from the eyes, is powerful and strongly curved ; and the talons are singularly hooked, and acute, being at the same time highly retractile ; the versatility of the outer toe, which is capable of being directed either forwards or backwards, is also a point worth noticing, as it is intended thereby to strengthen the grasp, claw being opposed to claw. Many of our readers have, perhaps, experienced the danger of suffering a pet Owl to settle on the arm or hand. The head of the Owl is large, in order that it may contain the full developed organs of sight and hearing, as well as present a broad surface for the attachment of various muscles, connected

with carnivorous propensities ; its size is, however, increased, and its contour rendered globular by the singular arrangement of the full plumage which invests it. The disc of radiating feathers encircling the eye we have already noticed ; but in addition, the top of the head is, in many species, garnished with two elongated plumelets, or tufts, commonly called *ears*, from their appearance, and capable of being erected or depressed. The whole plumage is soft, full, and downy. But why this superabundance of light and yielding feathers ? In order that the bird may winnow the air on silent wing, unheard by its victim. No one can have witnessed the flight of our common Barn Owl, as it skims round the farm-yard or down the hedge row, without noticing that it is peculiarly buoyant and noiseless, very different from the whistling rush of the fleet winged pigeon, or whirring of the pheasant. To this intent, then, is its plumage loose and delicately soft, offering no resistance, and no sharp rigid edges to the air, but yielding to every breath ; and such, also, is the character of the quill-feathers, which, from a designed defi-



FEATHER OF BARN OWL.

ency in strength and elasticity, are incapable of being struck against the air with that impetuous violence which

produces a rushing sound in the flight of so many birds; yet the flight of the Owl is not tardy and impeded; for, to compensate for this deficiency, the wings are of great extent, and by their gentle fanning the bird is not only capable of making considerable progress, but of whirling round, or dropping down like a plummet on his prey. But further, as if to make assurance doubly sure against the least possibility of sound being occasioned by the edge of the wing in passing through the air, the first quill-feather is singularly modified. Its outer edge, instead of being plain, as in most other birds, is fringed with a finely pectinated or comb-like line of short lashes, the prolonged terminations of the plumelets composing the vane; hence the air is not cut abruptly with an unyielding keen-edged instrument, but with one peculiarly modified for noiseless progress.

The full development of the organs of sight and of hearing has been noticed. The large staring eyes of these birds are expressly adapted for the subdued light of evening or night, and the pupils are capable of great dilatation: this dilatation of the pupil at night is also very remarkable in the cat, a quadruped of analogous habits; when the eyes are seen to glare with a prismatic sort of light, reflected by an internal membrane, the "*tapetum lucidum*," an appearance not observable by day. The eyes of the Owl are, however, less capable of bearing light than those of a cat; the iris is, therefore, more irritable, and its powers of contraction and expansion greater; there is, therefore, an additional defence provided against the painful annoyance of light; this consists of a thin semi-transparent membrane, called *membrana nictitans*, which the bird can draw over the eye like a fine curtain, or fold up at pleasure. During the day, these nightly hunters remain in their retreat, the eyes half closed, the membranous curtain drawn; at night, when the deepening shades call them forth to the chase, the eyes are full open and round, the membrane being folded up, by means of a peculiar contrivance, at the inner angle within the socket.

The ears of these birds are extremely susceptible. The

auditory cavities within the skull are prodigiously extended, and the external orifice is very large, concealed between two extensive and membranous valves, from the edges of which proceed the feathers which form the outer rim of the disc which encircles the face. The leaves of this double valve are capable of being thrown apart, so as to concentrate as well as give free entrance to every slight vibration of the atmosphere, the effect of which is increased by the widely diffused cavities connected with the internal mechanism, so that the faintest noise, the cry of a mouse, or its rustle among the straw, is heard with accurate distinctness. Subjoined is a sketch of the external valvular orifice of the ear of the common Barn Owl; the feathers being parted asunder.



As we see gradations to be the order of nature, the reader will not consider it as a contradiction to the above sketch of the habits and general economy of this race, when we state that there are many of the present family which, though hunters by evening twilight, are little, if at all, less hunters by day than are hawks or falcons; such, indeed, form the natural passage from the hawks to the true nocturnal marauders, and their organs of sight and hearing are modified accordingly; the pupils being less influenced by light, that is, the iris possessing less irritability, and the auditory cavities and external valvular concha being less extensive. We commence by selecting an

example of the diurnal group of the Strigidæ, to which Dumerie has given the generic name of *Surnia*.

The SNOWY OWL, (*Surnia nyctea*, DUMERIE.) This beautiful bird, which emulates the hawk in its daring



THE SNOWY OWL.

progress, as well as in its habits of hunting by day, is a native of the arctic regions of both continents, occasionally venturing as far south as the northern limits of the British dominions, having been seen in Shetland, and occasionally in the Orkney isles. The thick and downy texture of its

plumage declares it to be a dweller among the snow-clad wastes,

— “Where tardy suns to deserts drear
Give days and nights of half a year.”

In fact, not a single point is left exposed; the bill is almost concealed amidst the mass of plumage enveloping the head; the tarsi and toes are covered with an exuberance of long, thick, hair-like feathers, leaving the claws alone visible, which are strong, curved, and extremely sharp. Nor is the suitability of colour less remarkable, the whole of the plumage being of the purest white, with thinly scattered semilunar bars of brown on the back and under surface. The head is small, in comparison with that of the Owls in general; the eyes are deeply set, and the brows project, as in the falcon; the irides are of the most brilliant golden yellow.

That the Snowy Owl is constituted as a hunter by day is wisely ordered, on behalf of a creature inhabiting the frigid regions of Greenland, Lapland, Siberia, and the latitude of Hudson's Bay. In these desolate climes, where the sun in summer never dips below the horizon, and the darkness of winter is dispersed by the unceasing flashes of the aurora borealis, the Snowy Owl may be seen sweeping along in search of prey: the arctic hare, the ptarmigan, and various small quadrupeds constitute its food; and with a boldness like that of the peregrine falcon, it will follow the hunter by the day together, skimming down from its perch, “when a bird has been shot, with such rapidity as to carry off the prize before the sportsman can get within reach of it.” Wilson observes, that the usual food of this species is “hares, grouse, rabbits, ducks, mice, and even carrion;” and that, “unlike most of his tribe, he hunts by day as well as by twilight, and is particularly fond of frequenting the shores and banks of shallow rivers, over the surface of which he slowly sails, or sits on a rock a little raised above the water, watching for fish. These he seizes with a sudden and instantaneous stroke of the foot, seldom missing his aim.” The notes of this northern hunter of the arctic wilds are congenial with the gloomy

scenery, adding "horror even to a Greenland winter." Among these scenes of silent desolation, the Snowy Owls rear their progeny, building their nest on the ground, or on rocks; the young are two in number.

The plumage becomes more and more purely white with age, till at last few or no traces of brown remain; the head is unadorned with egrets or elongated plumes, and the beak and claws are black. Length, two feet; expanse of wings five feet two inches.

In addition to the Snowy Owl, may be mentioned the HAWK OWL, (*Surnia funerea*, DUMERIE,) as a hunter by day. This is a bold and active bird, and, like the former, a native of the arctic regions; but is less confined in the extent of its habitat, having been seen in Germany. Its congenial residence is, however, in higher latitudes; hence in Siberia, and in the fur countries of northern Canada, it is very abundant. Wilson says, its favourite range is along the borders of the arctic regions, whence it makes occasional excursions southwardly, when compelled by the severity of winter, and consequent scarcity of food. In length, this species is fifteen or sixteen inches. Bill yellow; irides golden; head small; the upper surface marked with mingled dots, streaks, and dashes of brown and white; throat whitish; under surface white, barred with brown; cheeks white; head dusky, with spots of white.

In all Owls which have the iris yellow, we find that the power of vision is less decidedly nocturnal; and that, though many prey solely by dusk or moonlight, with eyes thus coloured, yet that they are but little distressed during a dull and cloudy day, and that even during sunshine they are less confused and bewildered than their dark-eyed relatives, whose pupils, from their great extent of contraction and expansion, indicate the utmost intolerance of light, which renders them temporarily blind.

Now, leaving the true diurnal Owls, let us pass on to other groups. Of the genus *Bubo*, distinguished by elongated plumes or egrets, moderate auditory openings,

and a limited facial disc, with completely feathered tarsi, we first select the giant of its race, the GREAT EAGLE OWL (*Bubo marinus*) as an apt illustration. This



THE GREAT EAGLE OWL.

noble bird, though occasional specimens, according to M. Temminck, have been received of it from the Cape of Good Hope, and also, as Mr. Gould informs us, from China, is to be regarded as truly one of our European

species; in England and France it is of rare occurrence, but in Norway, Sweden, Russia, and Hungary, it is very common, residing among the deep recesses of mighty forests, or the clefts of rocks amidst the mountains, or the desolate ruins of ancient towers. From its lonely retreat, where it reposes in silence during the day, it issues forth as the dusk of evening throws a yet deeper gloom over the dark pine forest or rock-girt glen, to prowl in quest of prey. On silent wing it skims through the wood, and marks the fawn, the hare, or the rabbit, nibbling the herbage, as, concealed by the broad shadows, it skirts the line of dark black foliage. Suddenly wheeling, it sweeps upon the unsuspecting victim, and, if not too large, bears it off, eagle-like, in its talons. Other and less noble game is also to be reckoned as its prey, such as rats, mice, squirrels, and frogs; these are swallowed entire, after being merely crushed into a mass by the efforts of the bill, and the bones, skins, feathers, or hair, rolled into a ball, are afterwards rejected.

The Eagle Owl is about two feet in length, the upper surface is waved, barred, and dashed with black on a mingled brown and yellow ground. The throat is white; the under surface is yellow, with longitudinal streaks of black on the chest, and fine transverse bars below. Tarsi feathered to the toes. Beak and claws black; iris bright orange. This magnificent bird builds a large nest of sticks, in the crevices of rocks, in old ruined castles, or in hollow trees; the eggs are three in number, and white.

The harsh and dismal tones of these nightly prowlers resounding through the gloomy solitudes of a wild and savage scene, rendered still more gloomy by the dusk of evening or the blackness of night, are apt to be associated in the minds of the timid and superstitious with feelings of mysterious and indescribable awe; these feelings have ever prevailed among the rude and unenlightened, and hence has this bird, once more common in England than at present, been regarded, like the rest of its race in general, with fear and aversion, as if their discordant yells betokened the coming of evil. To this effect the strange aspect, the large eyes, the odd and singular motions, the

noiseless flight, and nocturnal habits, in connexion with the situations where they find a retreat by day, all combine to add. Superstition and ignorance go hand in hand; the hooting of the owl, and “trifles light as air,” seen through the perverted medium of credulity, will strike terror into the heart which actual danger would never appal. But the superstitious fears, which arise in cases like the present, though indicative of a weak and uneducated mind, are not connected with criminal ignorance, that ignorance which makes the peasant of Spain or France bow awe-struck before a rude cross or a graven image, and yet violate without a pang the plainest commands of God; tremble to eat meat in Lent, but yet profane the sabbath by converting it into a day of worldly pleasure and business; mortify his body by penance, and yet allow every base and evil passion to riot uncontrolled in his soul; pray to saints, and pray to sinners, but seek not His intercession who alone is “the way, the truth, and the life.” The philosophic christian may smile at the weakness of him who trembles at the voice of the owl sounding through the still air among the lonely ruins; but should he not feel a stronger and deeper emotion, when, travelling in foreign lands, he sees the superstition of him whose ignorance is the parent of sin and death.

Closely allied to the preceding species is the Great Horned Owl, or, as it is sometimes called, the Virginian Eagle Owl of North America.

The GREAT HORNED OWL, (*Bubo Virginianus*,) is spread from the arctic regions to the straits of Magellan. “His favourite residence,” says a celebrated writer, “is in the dark solitudes of deep swamps covered with a growth of gigantic timber; and here as soon as evening draws on, and mankind retire to rest, he sends forth such sounds as seem scarcely to belong to this world, startling the solitary pilgrim as he slumbers by his forest fire.”

“Along the mountainous shores of the Ohio, and amidst the deep forests of Indiana, alone, and reposing in the woods, this ghostly watchman has frequently warned me of the approach of morning, and amused me with his sin-

gular exclamations, sometimes sweeping down and around my fire uttering a loud and sudden *Waugh O! Waugh O!* sufficient to have alarmed a whole garrison. He has other nocturnal solos, no less melodious, one of which very strikingly resembles the half suppressed screams of a person suffocating or throttled, and cannot fail of being exceedingly entertaining to a lonely benighted traveller in the midst of an Indian wilderness."

Dr. Richardson, in the *Fauna Boreali-Americana*, states as a fact which came within his own knowledge, that "A party of Scottish Highlanders in the service of the Hudson's Bay Company happened in a winter journey to encamp after nightfall in a dense clump of trees, whose dark tops and lofty stems, the growth of centuries, gave a solemnity to the scene that strongly tended to excite the superstitious feelings of the highlanders. The effect was heightened by the discovery of a tomb which, with a natural taste often exhibited by the Indians, had been placed in this secluded spot. Our travellers having finished their supper were trimming their fire, preparatory to retiring to rest, when the slow and dismal notes of the Horned Owl fell on the ear with a startling nearness. None of them being acquainted with the sound, they at once concluded that so unearthly a voice must be the moaning of the spirit of the departed, whose repose they supposed they had disturbed by inadvertently making a fire of some of the wood of which his tomb had been constructed. They passed a tedious night of fear, and with the first dawn of day hastily quitted the ill-omened spot."

The discordant notes of this bird, uttered while perched upon some decaying tree, the parent of thousands around, are accompanied by a series of the most grotesque positions and ludicrous motions, the intervals between the many-toned cries being filled up by repeated snappings of the bill, as if by way of amusement. These contortions of the neck and body are indeed more or less observable throughout the race, as well as the snapping of the bill; they are part of the *mannerism* of the family.

The flight of this fine owl is sweeping and graceful, and he sails along, or rises and descends, with noiseless cele-

riety. Young turkeys, and game of every kind, are victims to his ferocity. In size this species is nearly as large as the preceding; and the general style of colouring is very similar, the upper parts being waved and mottled with black and brownish red, a tinge of gray prevailing on the ground of the lower part of the back; throat pure white; the rest of the under surface is marked by innumerable narrow transverse dusky bars on a reddish ground colour, thinly interspersed with white; face brown, with a margin of black; beak and claws black; iris bright orange. The nest is generally placed in the fork of a tall tree, and built of sticks, lined with dry leaves and feathers: sometimes, however, it is situated in a hollow tree or crevice among rocks. The eggs are dull white, and three or four in number. During the rearing of the young, the parents are active in supplying their carnivorous appetite, and consequently make sad havoc among the farmer's broods. Audubon says that he has known a settler's farm to have been stripped by one of these birds of the whole of its poultry.

To the genus *Otus*, Cuv. belong two beautiful owls, the long-eared and the short-eared, both natives of Europe and of North America, as well as of the northern portions of the continent of Africa. The genus *Otus* is characterized by the elongated egrets or plumes on the head, by the extent of the conch of the ear, with a valvular lid or operculum, and by feathered tarsi.

The LONG-EARED OWL, (*Otus vulgaris*, *Strix Otus*, LIN.) is common to both continents, and by no means unfrequent in the northern parts of the British isles. Except in size, it has much resemblance to the Great Eagle Owl, (*Bubo maximus*,) and, like that bird, loves the deep solitudes of woods and forests. It is generally found occupying the nest of the crow or magpie; and Wilson observes that its manners are the same in America as in Europe, having on one occasion discovered a nest of the night heron, (*Ardea nycticorax*,) the possession of which had been usurped by a pair of these

marauders, though probably without further injury to the rightful tenants, as there were numbers of night herons' nests not only on the trees around, but there was actually one on the same tree, all peaceably occupied by their true proprietors. The length of the Long-eared Owl is about fourteen or fifteen inches. The plumage of the upper surface is brown rufous and whitish, intermingled most beautifully together; of the under, an intermingling of rusty, cream, black, and white, with large arrow-heads of black from the chest to the thighs, which are plain rufous.

The SHORT-EARED OWL, (*Otus Ulula*, *Strix brachyotus*, LATH.) is one of our winter visitants, arriving with the woodcock in October, and retiring in March. It is generally associated in small flocks, and prefers the ground, upon which it is said to build, and where it is usually found, especially in marshy districts covered with tall reeds and grasses. In this situation, says Latham, it is supposed to be in search "after reptiles for food, as also mice; and in some places which have been infested with the latter, the owls have collected in large troops and attacked the depredators to their utter extermination." In Lincolnshire it pays an annual visit to the fens, attracted by the mice which there abound, and also in similar districts; and it has been often observed that when those little depredators are numerous, the owls appear in like proportion. "In the year 1580, at Hallowtide, an army of mice so overrun the marshes near South Minster that they eat up the grass to the very roots; but at length a great number of *strange painted owls* came and devoured all the mice. The like happened in Essex in 1648." Dale Harwich, App. 397.—Col. Montagu knew an instance of a similar nature a few years since at Bridgewater; and Bewick states, that twenty-eight of these birds have been found in a turnip-field exploring the ground for mice. In Holland it appears in great numbers often as early as September, passing down from the high northern latitudes, where it takes up its summer abode and rears its young. In the United States it is migratory as with us, one of its

summer retreats being the wild swampy woodlands along the coast of Labrador. In dark and cloudy weather it is often invited to bestir itself from its repose, taking short flights, and then settling among the grass, or on some slight elevation, at the same time erecting the two small feathers which constitute its egrets, and which are usually not to be perceived, and indeed can scarcely be distinguished by examination from the rest of the plumage of the head.

In size it is as large as the former species, being fourteen or fifteen inches in length. The feathers of the upper surface are of a blackish brown, each having a yellowish rufous margin; the tail is of the latter colour, with brown bars; the under surface a pale yellowish, with dark brown longitudinal dashes.

The two most common English owls are the Wood or Tawny Owl, and the Barn Owl. In both the egrets, or plumelets, are wanting. Cuvier assigns them as the exemplars of two separate genera.

The WOOD OWL, (*Syrnium Aluco*, SAVIG.) is the well known prowler of our woods and forests, where its hooting may be heard, as nightfall renders it animated and lively, while the rest of the feathered race are reposing to sleep. It may then be seen gliding on noiseless wings down the avenues and among the trees, now wheeling around, now sweeping to the ground, as some stir among the herbage or rustling among the scattered leaves attracts its eager notice. Moles, bats, mice, rats, and frogs, are its chief subsistence; and in search of these it hunts with great assiduity. During the day it sits in its secret retirement, the hollow of an age-worn tree, or bower amidst the mass of ivy which loads some giant of the wood, waiting till evening shall restore its congenial twilight. It builds in holes of trees, or takes up with a deserted crow's nest. The eggs are whitish, and generally five in number. The young are carefully supplied with abundance of food; and the collections of rejected bones in old trees which have served as owl nurseries for successive years are often discovered to the no small astonishment of the woodman,

whose axe and saw have broken up the long-maintained establishment. The general colour of the species is tawny yellow, the upper surface being undulated with dusky bars, each feather having a streak of black down the shaft; a row of large white spots stretches across the scapularies and wing-coverts. Under surface, pale tawny, with longitudinal streaks of brown. Length fourteen inches. The genus *Syrnium*, distinguished like the following (namely the restricted genus *Strix*) by the absence of egrets, has been separated from it in consequence of the diminished volume of the organs of earing, the concha being reduced to a small oval cavity, whereas in the latter it is greatly developed and covered by a valve.

To the genus *Strix* belongs the most familiar example of its race, the COMMON BARN OWL, (*Strix flammea*, LIN.) a bird with which the reader no doubt is acquainted. This elegant species is extensively spread throughout Europe, Asia, and America, and is common in our own island, where it is one of the most useful, though perhaps one of the most persecuted, of the feathered race. An indweller of the farmer's barn, this aerial wanderer of the night destroys more of those little pests, the mice, than any cat which enjoys the full and free immunities and privileges of the place. "When it has young," says Waterton, "it will bring a mouse to the nest every twelve or fifteen minutes;" that is, during the evening and night: nor are rats and bats safe from its attacks. "If," says the writer just alluded to, "this useful bird caught its food by day instead of hunting for it by night, mankind would have ocular demonstration of its utility in thinning the country of mice, and it would be protected and encouraged every where." The farmer, however, from ignorant superstition, is often its greatest enemy, and if his pigeon loft becomes thinned, or his young broods suffer diminution, ascribes the depredation to the poor owl instead of the rat. "Formerly I could get very few young pigeons till the rats were excluded effectually from the dovecot; since that took place it has produced a great abundance every year, though the Barn Owls frequent it and are encouraged all

around it” “ and the Barn Owl is not looked upon as a bad or even suspicious character by the inhabitants of the doyecot.” In fact, this silent-winged bird has been



THE COMMON BARN OWL.

known to breed in a tenanted pigeon loft without producing the least alarm. One of the contributors to the *Mag. of Nat. Hist.* vol. v. p. 727, after stating that he

watched a pair of these birds carry food to their young ones twelve times in twenty minutes, goes on to observe respecting the same pair, that a friend who “kept pigeons, and had often a great number of his young ones destroyed, laid it to the poor owl which visited his premises, and accordingly one moonlight night stationed himself gun in hand for the avowed purpose of destroying the ‘feathered rascal.’ He had not taken his station long before he espied the poor owl flying from the locker with a load in his claws; pop went the gun, down came the owl; when, oh! dire to relate, instead of the young pigeon, which my friend’s indignation had loaded him with, it was an old barn rat nearly dead, a proof of the utility of these birds.” Besides the farmers’ barns, old churches, ruins, ivy-grown towers, and hollow trees, are the favourite abodes of the Barn Owl. From these solitary retreats its voice may be often heard breaking the stillness of night-fall, and striking like an omen upon the peasant’s ear as at the curfew hour “he homeward plods his weary way,” “when all the air a solemn stillness holds,”

“ Save that from yonder ivy-mantled tower
The moping Owl doth to the moon complain
Of such as wand’ring near her secret bower
Molest her ancient solitary reign.”

GRAY.

But, reader, this solemn stillness, these ivy-clad ruins, mementos of the perishableness of man and his labours, the old abbey, the coeval yew-trees, the silvery moon, and the solemn-visaged owl, forming an association sanctioned by nature and poetry, ought rather to lead the mind to solemn contemplations, to Him whose word shall outlive the proudest monuments of man, “day, and the sweet approach of even or morn,” or the “great globe itself.”

In the ancient days of Greece and Rome this bird was emblematical of wisdom, and consecrated to Minerva; and truly we know no other bird invested with such an air of sombre gravity.

The upper surface of this species is of a delicate tawny yellow, varied by zigzag lines of gray and brown, and

powdered with a multitude of little whitish dots; face and under parts white, some individuals having the chest dotted with brown; length thirteen inches.

Our review of the present group shall be finished with a short account of the Burrowing Owls of the plains of intertropical and southern America, a singular genus, the affinities of which are not well determined. The species are characterized by diurnal habits, a slender form of body, and elongated naked tarsi; the head is small, and the facial disc of little extent. Azara describes one of these Owls under the name of *Suinda*, observing that it is diurnal in its habits, and that it never enters woods or perches upon trees, “but exclusively haunts the open country where game abounds, making its nest and concealing itself in the holes or kennels of the armadillos, which are not very deep, but well lined with hay or straw. It flies by day, seldom rising above five or six feet from the ground, and looks at a distance so like a buzzard, that it deceived both Nosedá and himself. It is scarce in Paraguay, though it is said to abound south of the river La Plata; but it is so quick in diving into its burrow that Azara could not procure a specimen.”

C. L. Bonaparte also describes a Burrowing Owl, (we suspect a different species from that noticed by Azara,) which is a native of “the trans-Mississippian territories of the United States,” and which “resides exclusively in the villages of the marmot or prairie-dog,” (*Viscacha*), “whose excavations are so commodious as to render it unnecessary that our bird should dig for himself, as he is said to do in other parts of the world where no burrowing animals exist. These villages are very numerous and variable in their extent, sometimes covering only a few acres, and at others spreading over the surface of the country for miles together. They are composed of slightly elevated mounds, having the form of a truncated cone, about two feet in width at the base, and seldom rising so high as eighteen inches above the surface of the soil. The entrance is placed either at the top or on the side, and the whole mound is beaten down externally, especially at

the summit, resembling a much used footpath."
“ In all these prairie-dog villages the Burrowing Owl is seen moving briskly about, or else in small flocks scattered among the mounds, and at a distance it may be mistaken for the marmot itself when sitting erect. They manifest but little timidity, and allow themselves to be approached sufficiently close for shooting; but if alarmed, some or all of them soar away and settle down again at a short distance; if further disturbed, their flight is continued until they are no longer in view, or they descend into their dwellings, whence they are difficult to dislodge. The burrows into which these Owls have been seen to descend, on the plains of the river Platte (Plata,) where they are most numerous, were evidently excavated by the marmot, whence it has been inferred by Sury that they were either common though unfriendly residents of the same habitation, or that our Owl was the sole occupant of a burrow acquired by the right of conquest. The evidence of this was clearly presented by the ruinous condition of the burrows tenanted by the Owl, which were frequently caved in and their sides channelled by the rains, while the neat and well preserved mansion of the marmot showed the active care of a skilful and industrious owner. We have no evidence that the owl and marmot habitually resort to one burrow, yet we are well assured by Pike and others that a common danger often drives them into the same excavation, where lizards and rattlesnakes also enter for concealment and safety.”

The Owl is several times noticed in the Holy Scriptures, but without reference to any species in particular, the whole race being no doubt included under the general term. We first meet with it in Leviticus xi. 16, where, with the “night-hawk,” (*caprimulgus*,) and the “cuckoo,” and the “hawk,” the “owl” is ranked among birds prohibited as food.

In Job xxx. 29, the afflicted writer thus laments his condition: “I am a companion to owls;” that solitary bird of night, whose wailing tones are heard in dark secluded caverns and recesses, is an emblem of me, alone,

uncheered, and mourning in my dark hours of sorrow. The like comparison is used by the royal psalmist (see Ps. cii. 6) when in the day of trouble he prayed that his cry might come up unto God: "I am like a pelican of the wilderness; I am like an owl of the desert."

Isaiah, foretelling the desolation of Babylon*, among other expressions tending to show the complete condition of its overthrow, says, (ch. xiii. 21), "But wild beasts of the desert shall lie there, and their houses shall be full of doleful creatures; and owls shall dwell there."

The prophet Micah, lamenting the consequences of the idolatry of Judah, says, I will make "mourning as the owls."

With these selected passages, which have a clear and forcible relation to the characteristic habits and tones of the birds of the present family, we may close this sketch of these nightly marauders, not without having exhibited to the attention of the reader some manifestations of that God whose designs, plans, and arrangements, whether contemplated in the schemes of creation, providence, or grace, are ever calculated to excite the loftiest conceptions of his wisdom, power, and mercy.

* Numerous travellers in our own day have attested the fulfilment of this Divine prophecy. The following is Dr. Keith's summary of their reports:—"There are many dens of wild beasts in various parts: in most of the cavities are numbers of bats and owls; porcupines also abound. These caverns, over which the chambers of majesty may have been spread, are now the refuge of jackals and other savage animals. The mouths of their entrance are strewn with bones of sheep and goats; and the loathsome smell that issues from most of them is sufficient warning not to proceed into the den." Thus shall all the Divine threatenings be fulfilled in the appointed season.

ORDER II.

THE PASSERINE, OR INSESSORIAL ORDER.

PASSERES, *Lin.* INSESSORES, *Vig.*

LINNÆUS, in his arrangement of Ornithology, constructed the order succeeding that containing the rapacious birds, of an ill sorted union of genera, characterised by features totally distinct and opposite. This order he called *Picæ*; and it contained the parrots, the toucans, the crows, the trogons, barbets, kingfishers, cuckoos, woodpeckers, creepers, and humming-birds, besides others. He then placed at the end of the rest another order, to which he gave the name of *Passeres*, and which contained the song-birds, the pigeons, the swallows, the goatsuckers, &c. These two orders thus disjoined, and thus divided into genera, which, without any natural relation to each other, were placed in close approximation, Cuvier remodelled entirely afresh; they constitute his order of “*Les Passereaux*,” from which he excludes the parrots and such birds as have syndactylous feet, (that is, two toes before and two behind); these are however retained in the system of Mr. Vigors, where they stand as his fourth tribe of the order Insesores under the name of *Scansores*. With some hesitation, however, we follow Cuvier in considering these syndactylous birds as rather qualified to constitute a distinct order than a tribe. In the present arrangement of this order (namely, the insectorial birds, *Insesores*,) they are therefore omitted, though, as most appropriate, the name is retained, which, in his sketches of ornithology, Mr. Vigors has bestowed.

The name of *Insesores* alludes to the perching habits which generally obtain among the subjects of this order; other features they can scarcely be said to have in common; so that the characters by which the *order* is dis-

criminated, are, as Cuvier observes, of a negative kind, since it comprehends those birds which are neither swimmers, nor waders, nor climbers, nor rapacious, nor gallinaceous; yet among them there may be traced a general similarity of structure, and especially an insensible melting of one group into another, so that it is difficult to establish rigid subdivisions. Without the ferocious habits and appetites of the Raptorial Order, on the other hand they are not all restricted, like the gallinaceous birds, to a regimen consisting of grains and vegetables, but, according to modifications of beak and digestive organs, feed upon insects, fruits, or grains, or all combined. As, of all the orders, the present contains the most numerous assemblage, and that too composed of groups differing in many important particulars, the best systematic writers of the present day have divided it into primary sections, or tribes, a mode by which all confusion is at once avoided.

TRIBE I. FISSIROSTRES.

The term Fissirostres alludes to the wide gape of the bill, which is so remarkable a feature in all the subjects of the tribe. This width of gape, in connexion with other circumstances, enables them to take their food on the wing; hence they are all gifted with great and many with amazing powers of flight, some, as the swallows, continuing with the utmost ease upon the wing during the whole of the day. The Raptorial Order was concluded with the Owls, whose habits and plumage were discussed at some length. To that description the reader is referred, because we are now about to demonstrate how close and direct are the links of union by which those birds (*Fam. Strigidæ*) are connected with the first family of the tribe of *Fissirostres*; thus proving the orderly and harmonious gradations of Nature.

FAMILY THE FIRST.—The GOATSUCKERS, (*Caprimulgidæ*, VIG.) The Goatsuckers, or Night-jars, are birds of nocturnal habits; roused on the approach of twilight from their repose, they issue forth to spend the night in search of food, or in the delights of active

existence. Their eyes are large, and of that character well termed nocturnal; their plumage is full, soft, and downy; their gape enormous; their wings long; their tarsi very short, and generally feathered; their toes are three before and one behind, but the hind one can be brought forward; and the nail of the middle, in most species, is pectinated on its internal edge. They live isolated in solitary retreats and deep woods; whence they emerge on wings whose gentle fanning is not heard as they flit along, chasing the moth and other insects which like themselves sport and play in the murky twilight. The subdued and blended tones of gray and brown which beautifully chequer their plumage well amalgamate with the shadows and indistinctness which evening throws over the massive foliage of the trees, and tend to their concealment. The width of their gape renders it impossible for them to miss their prey; and to prevent its struggles the edges of the mandibles are furnished with a row of stiff bristles. The bill is small and incurved. This family is a link of connexion by which the present order is united to the owls, or last family of the preceding. The soft, full plumage, the large eyes, the nocturnal habits, and even the contour of the body, render this at once generally evident; so much so that one of the popular names of the common Goatsucker is that of Fern-owl.

But what will our readers say to the annexed sketch? It is an accurate representation of the head of the HORNED PODARGUS from Sumatra, (*Podargus cornutus*.) It might indeed be mistaken for an owl. The size of the head, the great staring eyes, the hooked bill, (though the gape is more enormous than in the owl,) nay, the very plumelets into which the ear-coverts are elongated, together with style of plumage and nocturnal habits, display the similarity to every observer.

The genus *Podargus* is distinguished from that of *Caprimulgus*, as at present restricted, by the greater length and strength of the tarsi, the absence of pectination on the nail of the middle toe, by a more robust and elongated beak, having a gape of more enormous extent,

by a larger head in proportion, and by a greater superiority of size. Of the habits and manners of the species known to science we have little express information, save that they resemble those of the genus *Caprimulgus*.



HEAD OF THE HORNED PODARGUS.

To one or two of the species of this latter genus (*Caprimulgus*) we shall proceed to direct our reader's notice, selecting such as are the most characteristic examples: and first the COMMON GOATSUCKER, (*Caprimulgus Europæus*, LIN.)



THE COMMON GOATSUCKER.

The Goatsucker, Fern-owl, or Night-jar, &c., for by these names and many more it is known, is one of our summer birds of passage. Many of our readers have tasted the luxury of a summer evening's walk, not along streets and crowded thoroughfares, but by "woods, and lawns, and living streams," where contemplation comes like a welcome guest and leads us to deep and solemn thoughts of Him whose pervading presence is most sensibly felt and owned at such an hour. All is silence, save when the warm breeze whispers among the foliage, or the mellow notes of the nightingale burst out from the dark thicket, or the bat screams as it wheels by. Suddenly a jarring vibratory sound, like that produced by the quick rotation of a spinning-wheel, strikes the ear; it continues for several minutes, ceases, and is repeated louder and nearer. Presently on wings, rapid as an arrow, and yet noiseless as a shadow, a bird skims past, and settles on some branch or wall, or on the palings; and again the jarring sound commences. It is the Goatsucker. If it now be watched, it will be observed to dart off in chase of moths, displaying the most amazing powers of wing, and the most rapid and surprising evolutions, and again settle and repeat its singular note. On attentive inspection it will be found not perching across the bough as birds do in general, but lengthways, or along the bough, with its head depressed so as almost to touch it, and its throat swollen and quivering with the utterance of its jarring notes.

No one has paid more attention to this singular bird than the late Rev. G. White, (see his *Natural History of Selborne*.) He observes that the only sound it utters during flight is occasionally a "small squeak," and very rarely a vibratory chatter; but that it is while resting that it gives full vent to its voice. "I have," says that interesting writer, "watched it for many a half hour as it sat with its under mandible quivering." "It perches usually on a twig with its head lower than its tail." "This bird is most punctual in beginning its song exactly at the close of day, so exactly that I have known it strike

up more than once or twice just at the report of the Portsmouth evening gun, which we can hear when the weather is still. It appears to me past all doubt that its notes are formed by organic impulse, by the powers of the parts of its windpipe formed for sound, just as cats purr. You will credit me, I hope, when I assure you that as my neighbours were assembled in a hermitage on the side of a steep hill where we drink tea, one of these Churn Owls came and settled on the cross of that little straw edifice, and began to chatter, and continued his note for many minutes; and we were all struck with wonder to find that the organs of that little animal when put in motion gave a sensible vibration to the whole building."

We have already alluded to the pectinated or comb-like margin of the claw of the middle toe; thus:



This peculiarity of structure, which occurs also in the tribe of herons, has been the subject of much speculation. Some have supposed it to be of use, (like the rough edgings along the toes of the cock of the wood,) in its mode of perching; others that it assisted in the retaining of its prey, which it was supposed to catch with its foot. Of the latter opinion was White, who says, (Letter XLVII.) "On the 12th of July (1771) I had a fair opportunity of contemplating the motions of the *Caprimulgus*, or Fern Owl, as it was playing round a large oak that swarmed with *scarabæi solstitiales*, or fern chafers. The powers of its wing were wonderful, exceeding, if possible, the various evolutions and quick turns of the swallow genus. But the circumstance that pleased me most was that I saw it distinctly more than once put out its short leg when on the wing, and by a bend of the head deliver somewhat into its mouth. If it takes any part of its prey with its foot, as I have now the greatest reason to suppose it does these chafers, I no longer wonder at the use

of its middle toe, which is curiously furnished with a serrated claw."

We have no doubt that Mr. White describes what he saw; but he did not see the bird strike with its talons like a falcon, and never would: its limbs are weak, small, and incapable of being protruded with rapid energy, and its foot is as incapable of grasping. No; its wide and bristle-fringed gape is its instrument of seizing its prey. What then did it do when it bent its head to its claw? The bird was feeding on the chafers without any doubt, and these insects have hard wing-cases, which the bird does not swallow. Now, secured between the mandibles of the Goatsucker, as taken in the act of flying, the open wing-cases of these insects may be supposed to be kept in their extended position by the compression of the row of fringes projecting from the sides of the mouth; and we suspect that to assist in tearing away these hard shelly parts by means of this claw, previously to swallowing the rest of the body, was the reason of the action referred to. Thus would this claw in like manner assist in removing similar rejected parts of other insects, as the wings of moths, also kept steady and incapable of fluttering by the fringe of bristles; and it might even be called into use to arrange the bristles themselves, if intertangled or discomposed by the struggles of a powerful captive. These, however, are mere suggestions.

The favourite haunts of this interesting bird are the skirts of woods and plantations, or the clustered trees around a country mansion or farm-house. During the day it sits in quiet repose sheltered among the densest foliage, till evening rouses all its vigorous energies. It takes little pains with the building of a nest, often incubating on the bare ground among the heath or furze, or among the brushwood of a coppice, and not unfrequently in the hole of a tree, or on the ledge of a rock: the eggs are two in number, regularly marbled with brown and gray on a white ground.

Most of the popular names of this bird are significant enough; that of Goatsucker appears to have arisen from

vulgar error, the width of its gape having led to the idea of its draining the udders of the smaller cattle. The time of the arrival of this bird is May, and it departs in September. It is diffused over the whole of the middle and southern districts of Europe, whence it passes to Africa to take up its winter quarters. Its plumage is beautifully diversified with a rich commingling of gray, black, brown, rufous, and yellowish, in dots, dashes, and zigzag bars, producing an effect beyond the power of the pencil to imitate. Length ten inches.

America presents two examples in particular of great interest. CHUCK-WILL'S-WIDOW, (*Caprimulgus Carolinensis*, BRISS.) is the name by which one is universally recognised, and which has been given to it from its singular notes. "About the middle of March," says Audubon, "the forests of Louisiana are heard to echo with the well known notes of this interesting bird. No sooner has the sun disappeared, and the nocturnal insects emerge from their burrows, than the sounds, 'chuck-will's-widow,' repeated with great clearness and power six or seven times in as many seconds, strike the ear." In a still evening it may be heard at the distance of nearly a mile, so full and emphatic is the pronunciation.

The flight of this curious bird is light and graceful. Like our British goatsucker, it appears to be silent when on the wing, and only utters its singular sentence while resting on its perch, "a fence-stake or the decayed branch of a tree in the interior of the woods." These notes, with occasional interruptions, while gambolling in pursuit of its prey, it continues after sunset for two or three hours together, and again for a considerable time before the dawn of day, raising and lowering its head alternately in quick succession as each note is uttered. Attracted in the midst of its unvaried repetition by passing insects, it ceases, and launches into the air, and wheels and turns and doubles with the most admirable address; "sweeping over the cotton-fields or the sugar plantations, cutting all sorts of figures, mounting, descending, and sailing with

so much ease and grace, that one might be induced to call it the *fairy of the night*." Soon after dawn these birds retire to their haunts, the hollow of a decayed tree or some similar situation, where they may remain in undisturbed repose. If discovered and invaded in their retreat, they open and shut their bills with a snapping sound, hiss, ruffle up the feathers of their bodies, and try to shuffle out of reach. Deep glens, ravines, and pine-swamps are their favourite localities, such places not only affording them abundant means of concealment, but teeming with their insect food.

Like our British species the Chuck-will's-widow is a bird of migratory habits, visiting Georgia in March, and Virginia early in April. "In the Chickasaw country, and throughout the whole of the Mississippi territory (says Wilson) I found the present species very numerous in the months of April and May, keeping up a continued noise during the whole evening, and in moonlight throughout the whole night." This bird forms no nest, but the eggs are deposited in a little cavity prepared by moving aside the dead leaves and grass, so as to receive them; they are two in number, of a dull olive colour, speckled with brown. Thus enveloped in surrounding leaves and tangled weeds, they are very difficult to discover; but what is very remarkable, if discovered and touched, they are removed by the parents to another and more secure situation. Of this fact Mr. Audubon assures us, informing us that the opinion among the farmers was that they were carried away somehow under the wing, but that the negroes asserted that the parent birds pushed the young or the eggs along with their bills. To ascertain the truth, he undertook to watch the result of an experiment himself; these are his words—"When the Chuck-will's-widow, either male or female (for each sits alternately) has discovered that the eggs have been touched, it ruffles its feathers and appears extremely dejected for a minute or two, after which it emits a low murmuring cry, scarcely audible to me as I lay concealed at a distance of not more than eighteen or twenty yards. At this time I have seen

the other parent reach the spot, flying so low over the ground that I thought its little feet must have touched it, as it skimmed along, and, after a few notes and some gesticulations, all indicative of great distress, take an egg in its large mouth, the other bird doing the same, when they would fly off together, skimming closely over the ground until they disappeared among the branches and trees. But to what distance they remove their eggs I have never been able to ascertain, nor have I ever had an opportunity of witnessing the removal of the young. Should a person, coming upon the nest when the bird is sitting, refrain from touching the eggs, the bird returns to them and sits as before. This fact I have also ascertained by observation.” The colours of the plumage of this elegant bird consist of yellow, ferruginous and blackish brown, blended and mingled together; the head and back are dark brown, minutely mottled with yellowish red, and longitudinally streaked with black. Wings barred with yellowish red and brownish black; with which latter colour they are minutely sprinkled. Tail similarly barred and sprinkled. Length twelve inches. This species leaves the United States about the middle of August.

A still more celebrated species than the foregoing is the WHIP-POOR-WILL, (*Caprimulgus vociferus*, WILSON,) which has also gained its name from its peculiar notes. The Whip-poor-will is a migratory bird, and visits the United States on the approach of spring, preferring the more barren and mountainous parts; accordingly, says Audubon, “the open barrens of Kentucky, and the country through which the Alleghany ridges pass, are more abundantly supplied with it than any other regions. Yet whenever a small tract of country thinly covered with timber occurs in the middle districts, there the Whip-poor-will is heard during the spring and early autumn.” Like its preceding congener, its flight is rapid and silent, and displays quick turns and zigzag evolutions; thus it skims over the ground by moonlight in pursuit of

beetles, moths, and other insects, keeping up the chase at intervals during the whole of the night, till the first beams of the sun warn it to retire to its secluded resting-place. During the day it reposes on some fallen trunk, or log, or even on the ground, and may be approached with a little precaution, so sound is its repose ; added to which, its eyes are dazzled by the light, so that its actions are undecided and tardy. In dull weather, however, it is much more alert, and skims away on the approach of an intruder.

On the arrival of these birds, their voices are heard, as evening sets in, in every wood and coppice, resounding with shrill accents through the stillness of twilight, and again before the break of day. Should the moonlight be clear, they continue throughout the whole night, with only occasional intermissions. Audubon, in his entertaining style, says, “ The Whip-poor-will continues its lively song for several hours after sunset, and then remains silent until the first dawn of day, when its notes echo through every vale, and along the declivities of the mountains, until the beams of the rising sun scatter the darkness that overhung the face of nature. Hundreds are often heard at the same time in different parts of the woods, each trying to outdo the others ; and when you are told that the notes of this bird may be heard at the distance of several hundred yards, you may form an idea of the pleasure which every lover of nature must feel during the time when the chorus is continued.”

There appears to be a general feeling of good-will to this bird, so that it is seldom molested ; besides, its rapidity and irregularity of flight, in conjunction with the obscurity of the time of its activity, render it difficult to be shot. As is the case with its congeners, the Whip-poor-will makes no nest, but deposits its eggs on the ground, among retired thickets, and the matted luxuriance of herbage and withered leaves ; the young are covered with down, so as to look like little *mouldy* patches, as if a bit of decayed wood lay amidst the leaves ; and it would appear that, if disturbed, they are in some way or

other removed by the parents. In traversing the woods, says Wilson, “one day in the early part of June, along the brow of a rocky declivity, a Whip-poor-will rose from my feet, and fluttered along, sometimes prostrating herself, and beating the ground with her wings, as if just expiring. Aware of her purpose, I stood still, and began to examine the place immediately around me for the eggs or young, one or other of which I was certain must be near. After a long search, to my mortification, I could find neither, and was just going to abandon the spot, when I perceived somewhat like a slight mouldiness among the withered leaves, and on stooping down, discovered it to be a young Whip-poor-will, seemingly asleep, as its eyelids were nearly closed; or perhaps this might only be to protect its tender eyes from the glare of day. I sat down by it on the leaves, and drew it as it then appeared. It was probably not a week old. All the while I was thus engaged it neither moved its body nor opened its eyes more than half; and I left it as I found it. After I had walked about a quarter of a mile from the spot, recollecting that I had left a pencil behind, I returned and found my pencil, but the young bird was gone.”

Like the swallows, these birds feed their young while on the wing, as well as while at rest. General colour of the upper parts, dark brownish gray, streaked and sprinkled with brownish black; under parts rather paler. Length nine inches.

Beside the two remarkable birds just described, there is also another species common in North America, from Florida to Hudson's Bay, and which closely agrees in size and plumage with the Whip-poor-will; it is commonly known by the name of the NIGHT-HAWK, (*Caprimulgus Americanus*, WILSON;) its voice, however, bears no similarity to the notes of the Whip-poor-will. Its velocity of flight is said to be astonishingly great.

Among the most singular of the species of this interesting genus may be noticed the FORK-TAILED GOATSUCKER

of the Brazils, (*C. psalurus*, TEMM.) remarkable for the extent and forked conformation of the tail, which it opens and shuts during flight. Of this bird the following is an accurate sketch from nature.



THE FORK-TAILED GOATSUCKER.

Africa, among many others, presents the LEONA GOATSUCKER, (*C. macrodipterus*,) a native of Sierra Leone. This curious bird is remarkable for the two long elastic shafts issuing from the middle of the wing-coverts, to the extent of twenty inches, and tipped with a broad

web for about five inches ; the total length of the bird is about eight inches. What can be the use of these singular appendages to the wings it is difficult to imagine ; probably they have some influence upon the flight. The legs and feet are very small.

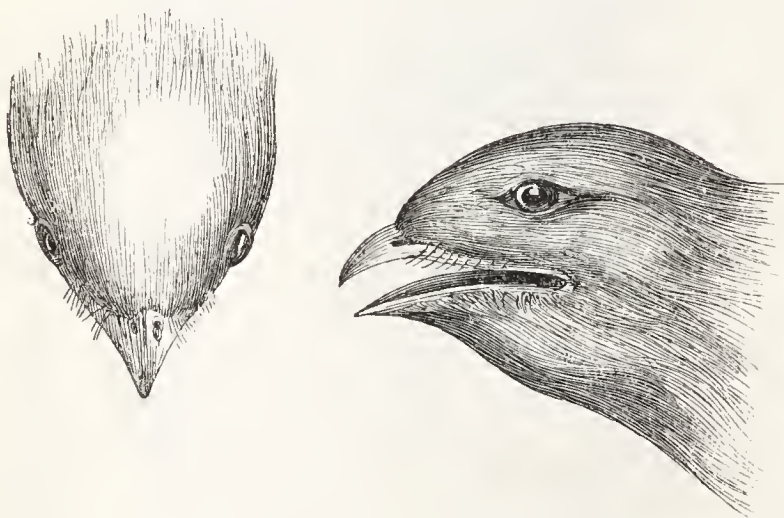


THE LEONA GOATSUCKER.

The Scriptures only contain one allusion to the present family, where, coupled with the owl, they are forbidden as food : “ and the owl and the night-hawk,” &c. “ shall be an abomination unto you.” Levit. xi. 16.

With these examples may be closed this sketch of the family of Goatsuckers, (*Caprimulgidæ*.) It leads naturally to the one next in order, a family preying, like the Goatsuckers, upon insects taken on the wing, for which purpose the whole of their organic powers and structure expressly adapt them. They are, however, diurnal in their habits, though late and early on their active employment.

FAMILY THE SECOND.—The SWALLOWS, (*Hirundinidæ*.) This family exhibits the same character of beak and the same width of gape by which the preceding was so remarkably distinguished; the beak however is broader at the base, and more compressed, (as the annexed sketches of the head of a species of Swift exemplify;) neither is it furnished along its edges with such a row of bristles.



The tarsi are extremely short and small, and the toes are furnished with sharp hooked nails, for the purpose of clinging to walls or the sides of rocks. In the Swifts, (*Cypselus*,) the toes are all four directed forwards; in the true Swallows, (*Hirundo*,) the hind toe is reversible only. Formed for flight, the wings of these birds are of extraordinary length, and the muscles by which they are moved of proportionate volume and vigour. Their flight,

however, is not like that of the goatsuckers, which, though rapid, is irregular, zigzag, and vacillating; theirs, on the contrary, is arrow-like, and decided. Hence their plumage is close set, and always smooth, sometimes even burnished and glossy. Their food consists of insects only, which are taken on the wing, and with which they often completely fill the throat, so as to distend it like a pouch; no doubt in order that their young brood may be duly satisfied at each successive meal.

In our climate they are all migratory, coming and departing with the summer; hence their arrival is welcomed as indicating the revival of the year. In every age they have been favourites with man; their appearance on the return of spring, their utility in clearing the atmosphere of myriads of insects, their confidence and familiarity in choosing their abodes beneath his roof, their astonishing rapidity of flight, and the elegant lightness of their forms, added to their mysterious disappearance led by the God of nature to another and more genial clime, "when the frost rages and the tempests beat," all combine to render them objects of interest. Hence they have been celebrated by poets of the earliest antiquity to the present day.

Of the numerous examples with which this family abounds, we shall select a few of the most interesting for the consideration of our readers.

The SWIFT (*Cypselus murarius*, TEM.) is, if we except the great WHITE-BELLIED SWIFT, (*Cypselus alpinus*, TEM.) the largest of the family which visits either our own island or Europe generally. It arrives the latest and departs the earliest, appearing about the middle of April, and retiring southwards early in August; hence it rears but one brood with us, whereas the rest of our Swallow tribe breed at least twice. There are few village steeples round which these birds may not be observed during the calm evenings of June and July, dashing and wheeling with surprising velocity, uttering loud and piercing screams of exultation; their address and dexterity on the wing are indeed almost beyond conception. On the wing they

collect not only their food but the materials with which they construct their artless nest; such as dried grass, feathers, silk or linen threads, pieces of muslin, and the like: these are no doubt partly taken by force from the nests of sparrows, which are abundant in old towers and steeples, but also skimmed from off the surface of the ground; though the Swift is seldom observed, like the swallow or martin, to maintain a long low flight, but in general sails in upper air, and sometimes at a prodigious elevation. The nest is placed in a hole or crevice of the masonry, and thus in darkness the female lays her eggs, which are only two in number, white in colour, and oblong in shape, and rears with great assiduity her young. “When the hen,” says White, “has sat hard all day, she rushes forth just as it is almost dark, and stretches and relieves her weary limbs, and snatches a scanty meal for a few minutes, and then returns to her duty of incubation.”

The active existence of the Swift is passed entirely in the air on the wing; it never settles, except during the few dark hours of a summer's night, and that only to repose. “It is,” says the writer just referred to, “a most alert bird, and is on the wing in the height of summer at least sixteen hours. In the longest days, it does not withdraw to rest till a quarter before nine in the evening, being the latest of all birds. Just before they retire, whole groups of them assemble high in the air and squeak and shoot about with wonderful rapidity. But this bird is never so much alive as in sultry thundering weather, when it expresses great alacrity, and calls forth all its powers. In hot mornings several getting together in little parties dash round the steeples and churches, squeaking as they go in a very clamorous manner. These by nice observers are supposed to be the males serenading their sitting hens; and not without reason, since they seldom squeak till they come close to the walls or eaves, and since those within utter at the same time a little inward note of complacency.”

Mr. White notices the pouch full of insects under the tongue, which when these birds are cruelly and wantonly shot is always discovered. We may add that it is the usual

way in which all the British *Hirundines* store up and carry food to their young. Let the thoughtless triflers who are so much in the habit of displaying their skill as marksmen against these useful unoffending birds reflect that most probably by every successful shot they have doomed a helpless brood to death from hunger, and that merely to gratify a weak and contemptible vanity. Were the mercy of God to man measured by the mercy of man to the creatures beneath him, his hopes would be faint indeed; but it is not so; He is “plenteous in mercy,” “He hath not dealt with us after our sins, nor rewarded us according to our iniquities;” but even for the vilest has opened a door of reconciliation through the sufferings and merits of his Son. And shall we, then, who have received mercy from our God, withhold it from the creatures He has made to testify of His glory and power?

When the Swift leaves Europe, on the approach of autumn, (and indeed the same question applies to all our summer visitors,) where does it go? The answer is, “southwards.” Most probably it proceeds by stages, with intervals of longer or shorter duration, according as circumstances may invite or compel it to remain stationary, and thus traversing continental Europe passes into Africa across the straits of Gibraltar. When the powers of flight with which this bird and the family to which it belongs are gifted are considered, migration to almost any distance is but an easy task. It is much more difficult to conceive how birds of less vigour of wing should perform similar journeys; but it should be remembered, that the journey is performed by degrees; and if we place a map of Europe before us we shall see how, without much risk, a bird of indifferent powers of flight may proceed from England to Africa. If we visit the southern coast during autumn, we shall be struck with the multitude of birds gradually collecting together, (such as wheatears, &c.,) and waiting for a favourable night, for night is the time of starting, in which to cross the channel. Arrived on the opposite coast, they either proceed along the western shores of France, or boldly sweep across the Bay of Biscay, and so pass into Spain, which they traverse

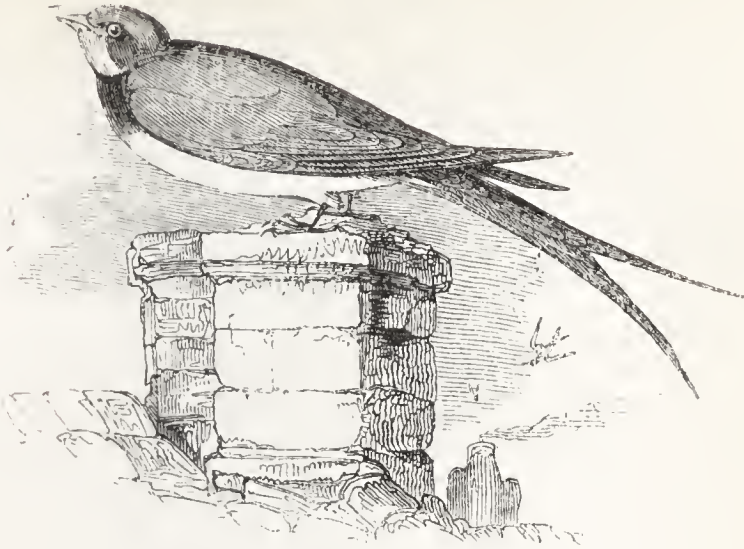
from north to south, and then enter Africa by the straits of Gibraltar: at that place, and along the southern coast of Spain, are our summer birds of passage first observed; and it is often several weeks before they have dispersed themselves over Europe; there too are they last seen, ere they take their final adieu.

With the exception of the throat of the Swift, which is white, the rest of the plumage is of a sooty black. The wings are of enormous length, far exceeding the tip of the tail when closed; the latter is forked. The tarsi are very short, so that the bird cannot walk, but only crawl; the feet, however, have a strong and tenacious grasp. The proportion which the wings bear to the legs prevents the Swift from willingly settling on the ground, as it finds great difficulty in rising, and indeed cannot do so from a perfectly smooth surface until after many ineffectual trials. But this is no defect; the Swift was never meant to tread the earth; its home is the sky; there it is in its congenial element, into which it launches itself as soon as morning breaks, and from which it retires unwillingly as evening darkens into night.

The SWALLOW, (*Hirundo rustica*, LIN.) This welcome visitor is too well known to need much description. It arrives in our island at the early part of April; but sometimes a few stragglers appear still earlier, before the spring has fairly opened, while the weather is yet severe, and the frost returns with the close of day: hence the proverb, "One Swallow does not make a summer."

The flight of this elegant bird is generally low, but distinguished by great rapidity and sudden turns and evolutions, executed as if by magic. Over fields and meadows, and the surface of pools and sheets of water, all the day may this fleet unwearied bird be seen skimming along, and describing in its oft-repeated circuit the most intricate mazes. The surface of the water is indeed its delight; its insect food is there in great profusion; and it is beautiful to observe how dexterously it skims along, and with what address it dips and emerges, shaking the spray from its burnished plumage, as, hardly interrupted by the plunge,

it continues its career. Thus it feeds, and drinks, and bathes upon the wing.



THE SWALLOW.

The Swallow breeds twice a year, and constructs its nest of mud or clay, mixed with hair and straw; the clay is tempered with the saliva of the bird in order to make it tenacious and easy of being moulded; and dissection proves the magnitude of the salivary glands for the purpose of elaborating this viscid fluid. The shell or crust of the nest thus composed is firmly fixed three or four feet down a chimney on the inside, and lined with fine grass and feathers. This is, however, by no means the invariable situation the Swallow chooses for her nest; she often builds against the rafters of barns or outhouses; and the writer knows that a pair yearly built in the rafters of a wheelwright's workshed, undisturbed by the din of the hammer or the grating of the saw. The propensity which these birds, in common with their family, exhibit to return to the same spot, and to build in the same chimney or barn year after year, is one of the most curious parts of their history. During their sojourn in foreign climes, they forget not their old home, the spot where they were bred, the spot where they have reared their offspring; but as soon as their instinct warns them to retrace their pilgrimage, back they hasten, and, as experiments have

repeatedly proved, the identical pair that built last summer in the barn again take up their old quarters, passing in and out by the same opening.

It is delightful to witness the care which the Swallow manifests towards her brood. When able to leave the nest, she leads them to the ridge of the housetop, where, settled in a row, and as yet unable to fly, she feeds them with great assiduity. In a day or two they become capable of flight, and then they follow their parents in all their evolutions, and are fed by them while on the wing; in a short time they commence an independent career.

The notes of the Swallow, though hurried and twittering, are very pleasing; and the more so, as they are associated in our minds with ideas of spring, and calm serenity, and rural pleasures: the time in which the bird pours forth its melody is chiefly at sunrise, when, in “token of a goodly day,” his rays are bright and warm.

“The breezy call of incense-breathing morn,
The Swallow twittering from the straw-built shed,”

unite alike to call man from his couch of rest, to praise “the God of seasons as they roll.”

After the work of incubation, ere autumn sears the leaf, the Swallow prepares to depart. Multitudes from various quarters now congregate together, and perch at night in clusters on barns or the branches of trees, but especially among the reeds of marshes and fens, round which they may be observed wheeling and sinking and rising again, all the time twittering vociferously ere they finally settle. It was from this circumstance that some of the older naturalists supposed the Swallow to become torpid and remain submerged beneath the water during winter, and to issue forth from its liquid tenement on the return of spring; a theory utterly incompatible with reason and facts, and now universally discarded. The great body of these birds leave about the end of September, but a few stragglers remain till near the middle of October, before they follow their companions.

The Swallow is easily distinguished by its remarkably

forked tail; the forehead and throat are chestnut; the whole of the upper surface, and the breast, black with reflexions of steel-blue and purple. Under surface white, with a slight wash of reddish brown.

The Holy Scriptures make frequent allusions to this interesting bird. Jeremiah, reproaching the Jews for their turning away from God, alludes to the Swallow as obeying His laws, while they who have seen His glory rebelled: “Yea, the stork in the heaven knoweth her appointed times; and the turtle and the crane and the Swallow observe the time of their coming; but my people know not the judgment of the Lord,” viii. 7.

The Psalmist notices the partiality of this bird for the temple of worship, the sanctuary of God: “Yea, the sparrow hath found an house, and the Swallow a nest for herself, where she may lay her young, even thine altars, O Lord of hosts, my King and my God.” Psalm lxxxiv. 3. Hezekiah, king of Judah, wrote of himself, “Like a crane or a Swallow, so did I chatter.” Is. xxxviii. 14. In these casual notices, we at least trace out that the habits, migration, and song of the Swallow were known to the inspired writers, a circumstance of no little value, since a false assertion that the facts of natural history are not correctly stated in the Bible has long been among the weak engines used by the infidel against the validity of that book “which maketh wise unto salvation;” and to have shown, in some measure, how truly correct are the scripture allusions and descriptions referring to natural history, is at the present time of no trifling importance. It is, in fact, loudly called for; and the effort to do this will not bring a thorn into the dying pillow, as a talent possessed, but not put out to use for Him who gave it. This has been one object of the present work.

Of the next British species, the MARTIN, or Martlet, (*Hirundo urbica*, LIN.) the less need be said, as the swallow, which it resembles in its essential habits, has been dwelt upon at some length. It does not however appear so soon, by several days, nor is it so active and vigorous on the wing, but skims along more smoothly,

with fewer and less rapid evolutions. It is, however, fond of wheeling over the surface of sheets of water, and of dipping as it flies. All are acquainted with its nest, which is fixed under the eaves of houses and barns, among the carved work of towers and gothic buildings, and also against the precipitous sides of rocks, as is common in Derbyshire. Rows of these little homesteads often adorn the farmer's outhouses, and we have seen more than once a large barn completely encircled by a belt of nests in close contact one with the other. This bird seems more gregarious than the swallow, at least multitudes generally form a colony, tenanting their old habitations year after year, and uniting to expel and drive off sparrows and other intruders. The crust of the nest is made of clay moistened with saliva, and is lined with feathers. A little aperture admits of the ingress and egress of the parents; and the fledged young, as yet unable to fly, may be often seen anxiously stretching out their heads in expectation of the desired morsel, or gazing upon the new world to which they are very soon to be introduced. As in the case of the Purple Martin of America, a good feeling universally prevails towards this pretty bird, which recommends itself to man by its confidence and its utility; hence it is welcome wherever it chooses to build, and we have often remarked, with great satisfaction, how good taste and feeling have interfered to prevent the destruction of a nest placed where it has even occasioned some inconvenience. The Martin leaves our island about the beginning of October; a few, however, sometimes remain over the first week in November.

This bird is distinguished by the less forked character of the tail, and by the pure white of the rump, breast, and under surface; the head and back being purplish black. The tarsi are covered with white down to the very claws. It often breeds thrice in a season, having four or five young each time of incubation.

Besides the martin we have another species, namely, the SAND MARTIN, (*Hirundo riparia*, LIN.) the least of our British swallows, and distinguished by being of a

uniform mouse-colour above and white beneath. It is the first of its family to arrive, appearing a week or two before the swallow, and often while the weather is severe. Its flight is more vacillating than that of its congeners, but it is equally fond of skimming over the surface of the water, and numbers may be annually noticed about the sheet of water in Hyde Park, though it is difficult to say where in such a locality they contrive to incubate. The Sand Martin, unlike its race, mines deep holes in sand or chalk cliffs, to the depth of two feet or even more, at the extremity of which it constructs a loose nest of fine grass and feathers, inartificially put together, in which it rears its brood.

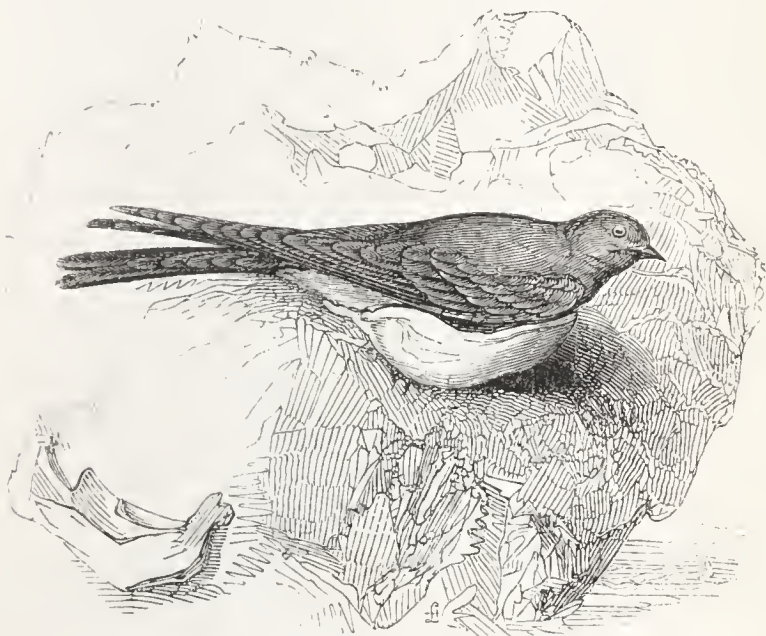
The Sand Martin is of a social disposition, hence flocks of these birds unite to colonize a favourite locality, such as a precipitous bank or rock, which they crowd with their burrows. Professor Pallas says, that on the high banks of the Irtysh their nests are in some places so numerous that, when disturbed, the inmates come out in vast flocks and fill the air like flies; and according to Wilson, they swarm in immense multitudes along the banks of the Ohio and Kentucky. We have seen their burrows by hundreds in some of the shelving sandbanks which border the streams in Cheshire, and in the summer of 1833 a numerous colony was observed occupying a steep bank of alluvial sand through which the road had been cut near Dorking, on the road to Brighton. What, it may be asked, are the instruments by which this little creature is able to bore into the solid rock, and excavate such a chamber? Its beak is its only instrument. This is a sharp little awl, peculiarly hard, and tapering suddenly to a point from a broad base; with this tool the bird proceeds to work, picking away from the centre to the circumference of the aperture, which is nearly circular; thus it works round and round as it proceeds, the gallery being more or less curved in its course, and having a narrow funnel-shaped termination. The author of "The Architecture of Birds" informs us that he has watched one of these Swallows "cling with its sharp claws to the face of a sandbank, and peg in its bill as a miner would

do his pickaxe, till it had loosened a considerable portion of the sand and tumbled it down amongst the rubbish below."



Of the present numerous family, the various members of which are dispersed throughout every portion of the globe, even a cursory sketch cannot be here attempted. Many are peculiar to America, many to India, and not a

few to Africa. There is, however, one which must not be passed over, not only because it is interesting from its habits of nidification and the nature of its nest, but because these very nests themselves form an important article of commerce in the Indian Archipelago. The species alluded to is the SALANGANE, or Esculent Swallow, (*Hirundo esculenta*,) so called, not because it is itself an article of diet, but because its nest is one of the greatest of luxuries to the taste of the Chinese epicure.



THE ESCULENT SWALLOW AND NEST.

The Esculent Swallow is a small species not unlike the sand martin, being of a dark grayish brown above and dirty white beneath. It is however suspected, and with reason, that more than one species forms a similarly constructed nest, equally used for food. However this may be, the bird and its nest that we have seen answer the following description given by Sir G. Stanton.

“ In the Cuss, a small island near Sumatra, we found two caverns running horizontally into the side of the rock, and in these were a number of those birds’ nests so much prized by the Chinese epicures. They seemed to be composed of fine filaments, cemented together by a transparent viscous matter not unlike what is left by the foam of the

sea upon stones alternately covered by the tide, or those gelatinous animal substances found floating on every coast. The nests adhere to each other, and to the sides of the cavern, mostly in horizontal rows, without any break or interruption, and at different depths, from fifty to five hundred feet. The birds that build these nests are small gray swallows with bellies of a dirty white; they were flying about in considerable numbers, but were so small, and their flight was so quick, that they escaped the shot fired at them. The same sort of nests are said to be also found in the deep caverns at the foot of the highest mountains in the middle of Java, at a distance from the sea." The value of their nests "is chiefly ascertained by the uniform fineness and delicacy of their texture, those that are white and transparent being most esteemed, and fetching often in China their weight in silver."

We may give our readers a good idea of the nest by comparing it to that of the Martin, (*H. urbica*,) having its crust or shell composed of a substance that looks very like the best manna sold at the druggists' shops, but of a texture resembling isinglass; it is shallow, and lined with soft feathers. It is this crust which is so much prized, and of which the composition is not yet ascertained. Some consider it formed of the gum of a kind of plant, some of a sort of fish-spawn, some of sea-foam, others of marine plants or of moluscous animals, and others of a peculiar salivary secretion of its own.

M. Lamouroux observes that there are three species, of which the smallest makes the most valuable nest; and he further states that it is distinguished by the feet not being covered with down; and that it is never found inland, like the other two, but always on the sea-coast; and that its nest is clear and white, and composed of sea-plants of an order termed by him *Gelidia*, which, by boiling or steeping in water, may be almost wholly reduced to a gelatinous substance. The inland species make use of opaque materials, and never of marine plants.

The most probable theory is, that, whatever else may be used, the bird, as is the case with our own swallow, employs a viscid saliva as a cementing medium. According to the chemical experiments of Dobreiner and Brande,

the white nests consist of a substance neither decidedly *gelatine* nor *albumen*: it is with difficulty reducible to ashes by the action of fire, and contains only a small portion of *ammonia* (volatile alkali.)

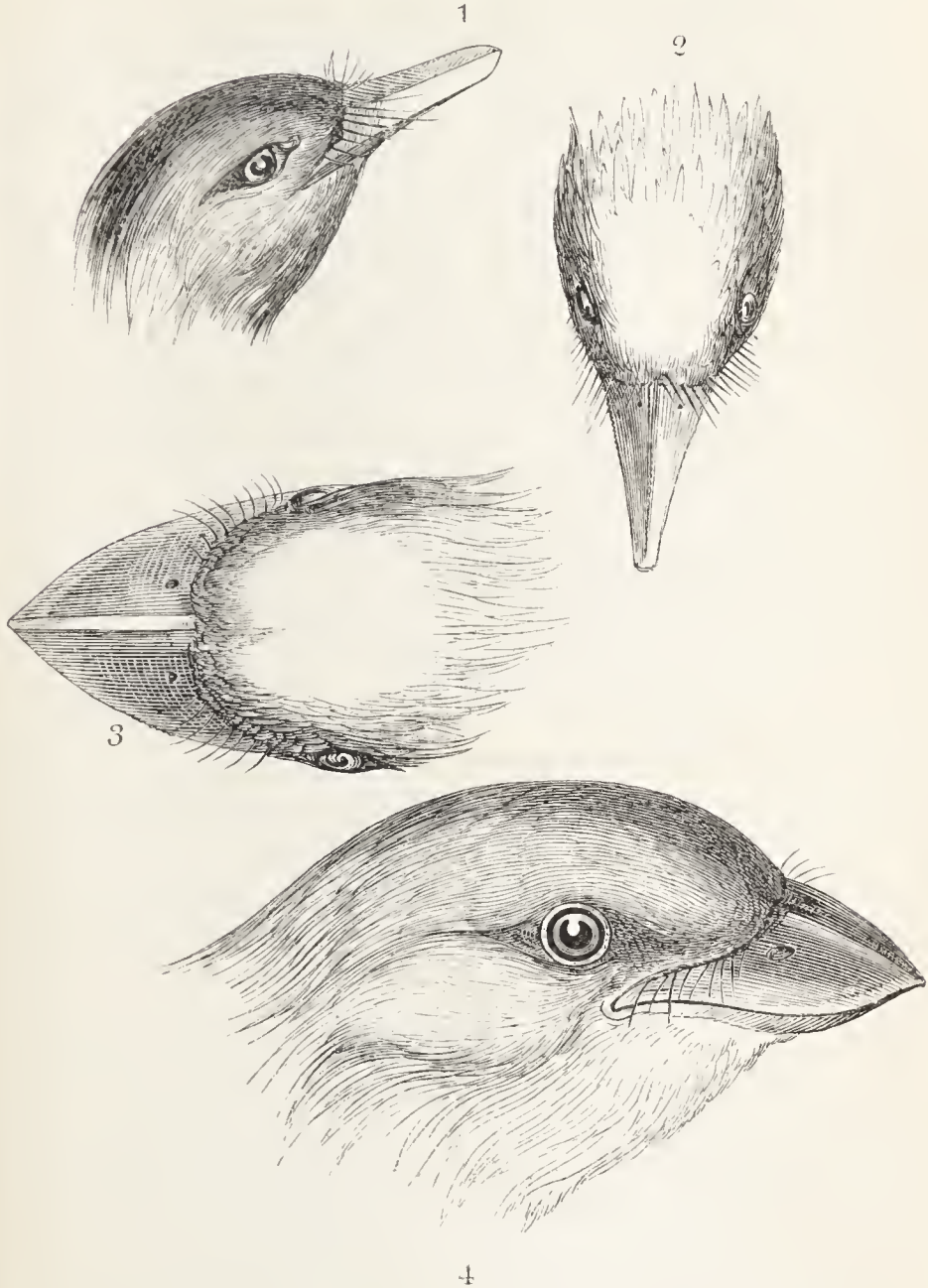
As a sketch of the commercial history of these nests, a few passages from the account by Mr. Crawford, late British resident at the court of the sultan of Java, who superintended the collecting of them at Karang-Bolang for several years, may be extracted.

“ The best nests are those obtained in deep damp caves, and such as are taken before the birds have laid their eggs. The coarsest are those obtained after the young have been fledged. . . . The best are white, and the inferior dark coloured streaked with blood, or intermixed with feathers. . . . Birds’ nests are collected twice a year; and if regularly collected, and no unusual injury be offered to the caverns, will produce very equally, the quantity being little if at all improved by the caves being left unmolested for a year or two. Some of the caverns are very difficult of access, and the nests can only be collected by persons accustomed from their youth to the office. The most remarkable and productive caves in Java, of which I superintended a moiety of the collection for several years, are those of Karang-Bolang, in the province of Baglen, on the south coast of the island. There the caves are only to be approached by a perpendicular descent of many hundred feet, by ladders of bamboo and rattan, over a sea rolling violently against the rocks. When the mouth of the cavern is attained, the perilous office of taking the nests must be often performed with torch-light, by penetrating into the recesses of the rock, when the slightest trip would be instantly fatal to the adventurers, who see nothing below them but the turbulent surf making its way into the chasms of the rock. The only preparation which the birds’ nests undergo is that of simple drying, without direct exposure to the sun; after which they are packed in small boxes, usually of a *picul*, (about 130 pounds.) They are assorted for the Chinese market into three kinds, according to the qualities, distinguished into first, or best, second, and third qualities. Caverns that are regularly managed will afford in 100 parts, $53\frac{3}{8}$

parts of those of the first quality, 35 parts of those of the second, and $11\frac{7}{10}$ parts of those of the third. The common prices for birds' nests at Canton are, for the first sort, 3500 Spanish dollars the picul, or 5*l.* 18*s.* $1\frac{1}{2}$ *d.* per pound; for the second, 2800 Spanish dollars per picul; and for the third, no more than 1600 Spanish dollars. In the Chinese markets a still nicer classification of the edible nests is often made than on the island. The whole are frequently divided into three great classes, under the commercial appellation of *paskat*, *chi-kat*, and *tung-tung*, each of which, according to quality, is subdivided into three inferior orders; and we have consequently prices varying from 1200 Spanish dollars per picul, to 4200. These last, therefore, are more valuable than their weight in silver. Of the quantity of birds' nests exported from the Indian islands, although we cannot state the exact amount, we have data for hazarding some probable conjectures respecting it. From Java there are exported about 200 piculs, or 27,000 lbs., the greater part of which is of the first quality. The greatest quantity is from the Suluk archipelagos, and consists of 530 piculs. From Macassar there are sent about 30 piculs of the fine kind. These data will enable us to offer some conjectures respecting the whole quantity; for the edible swallows' nests being universally and almost equally diffused from Junk, Ceylon, to New Guinea, and the whole produce going to one market, and only by one conveyance, the junks, it is probable that the average quantity taken by each vessel is not less than the sum taken from the ports just mentioned. Taking the quantity sent from Batavia as the estimate, we know that this is conveyed by 5300 tons of shipping; and therefore the whole quantity will be 1818 piculs, or 242,400 lbs., as the whole quantity of Chinese shipping is 30,000 tons. In the archipelago, at the prices already quoted, this property is worth 1,263,519 Spanish dollars, or 284,290 *l.* The value of this immense property to the country which produces it rests upon the capricious wants of a single people. From its nature it necessarily follows that it is claimed as the exclusive property of the sovereign, and every where forms a valuable branch of his income or of the revenue of the state."

Here we take leave of the family of Swallows, and proceed to our next.

FAMILY THE THIRD.—The TODIES, (*Todidæ*, VIG.)



As the present family possess no European representatives, the heads of two specimens, each of a different

genus, have been selected, in order to convey to the reader a clear idea of the remarkable structure of the bill.

1. The head of the Green Tody, the representative of a genus (*Todus*) confined almost exclusively to inter-tropical America.

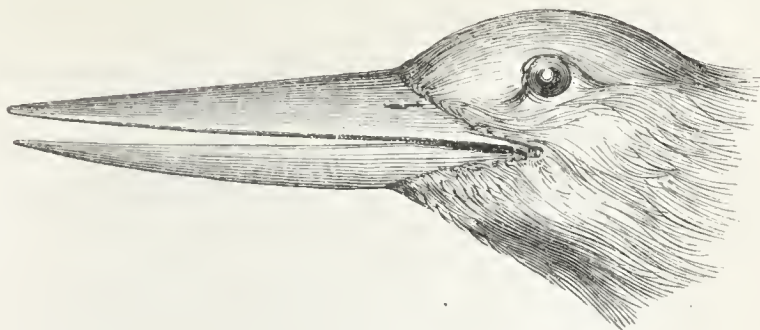
2. The head of a species of the genus *Eurylaimus*, (Horsf.) confined to India and the Indian Archipelago.

The Todies are characterized by a peculiar flatness or depression of the bill, which is more or less garnished with a row of hairs at its base. It varies however, as the sketch testifies, very considerably in its breadth: in some being narrow, long, and rounded at the tip; in others, broad at its base, and proceeding with a bend, like the prow of a boat, to the point. The wings are rounded, the tarsi are of moderate length; and the two outer toes are united together as far as the first joint. The habits of these birds have been little studied: we learn however that they frequent the borders of marshes and rivers, and feed on the softer kinds of insects which they take on the wing. Their flight, however, cannot be very rapid nor capable of long continuance.

The GREEN TODY (*Todus viridis*) is a most elegant little bird, scarcely exceeding in size the English wren; the bill, which is nearly three quarters of an inch in length, is very flat, but has a slightly raised ridge running down its whole length. The upper surface of the body is of a beautiful green, of the lower yellowish white, with the sides over the thighs rose-colour, and on the throat a spot of fine red. This species inhabits the warmer portions of America, and also Jamaica, Hayti, and other West India islands. It is said to be a bird of solitary habits, frequenting the borders of secluded marshy places, sitting with its head crouched between its shoulders, and suffering itself to be approached without rousing from its lethargy. It builds a nest on the ground, of cotton, feathers, moss, and other soft materials; the eggs are blue, and five in number.

Our fourth family now presents itself.

FAMILY THE FOURTH.—The KINGFISHERS (*Halcyonidae*, VIG.) The Kingfishers, of which several genera,



HEAD OF A SPECIES OF KINGFISHER.

depending upon trifling variations in the outline of the bill and other circumstances, are now established, form a very natural group characterized by the straight, lengthened, and pointed beak, with angular ridge and edges; by the extreme shortness of the tarsi, the outer and middle toes being united as far as the first joint; and by the the short tail and rounded wings. These are birds which prey upon fish, which they take by launching arrow-like into the water, and seizing transversely with their sharp and powerful beak. Hence for the most part is their plumage burnished with a metallic surface, and resplendent with the most brilliant hues. Lonely tenants of the banks of secluded streams and rivers, they spend the day in darting up and down the stream, or at rest on some overhanging branch, intently watching for their prey.

The species are very numerous, and are spread throughout every part of the world; they agree so closely in general habits, that the description of our native species, the COMMON KINGFISHER, (*Alcedo Hispida*,) will suffice for all. On all our streams, and especially those which flow through fertile meads, and abound in fish, may this richly coloured but voracious bird be met with, glancing backward and forward like a meteor, dazzling by the brilliancy of its hues as they flash in the sun. Often may it be seen poising itself at a moderate degree

of elevation over the water, and then darting with astonishing rapidity and suddenness upon some unwary trout or minnow, deep beneath the surface, but which is seldom missed by its assailant; so impetuous is the plunge, and so aided is the bird in passing through the water, by its acutely wedge-shaped contour of body, and by its burnished plumage. Its ordinary way however of watching for its victims, is for it to sit with dogged patience on a branch or tree, or rocky projection overhanging the stream, whence in silence and alone it watches every occurrence in the watery element below. Should its prey appear within reach, down it descends instantaneously like a shot, the crystal water scarcely bubbling with the plunge, the next moment it rises up, bearing its prey in its beak, and returns to its resting-place again. The bird now commences the destruction of its captive; without losing its hold, it passes the fish between its mandibles till it has it grasped fairly by the tail, and then ends its struggles by beating its head against the branch on which it sits; it next reverses its position, and swallows it head foremost; or if it have young, bears it away to its ravenous brood.

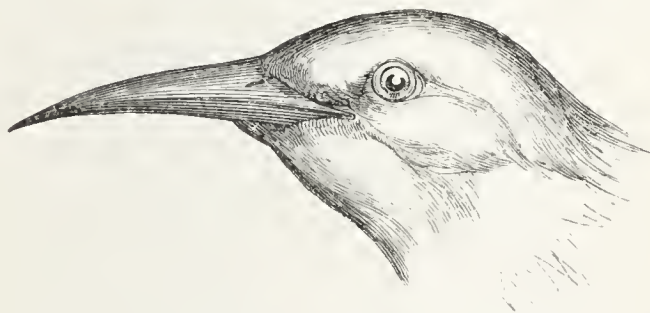
Though the Kingfisher may be often found near the haunts of man, still it prefers lonely and secluded places where it may pursue its instinctive habits without interruption. Its mate is its only companion, and both labour assiduously in the support of their young. The place chosen for incubation is a steep precipitous or overhanging bank, in which, at some distance above the water, they either form or seize upon a burrow extending about three feet deep, at the extremity of which, without making any nest, the female lays her eggs, about five in number, of a beautiful pinky white. After the young are hatched, it is not long before they are surrounded with a circular mound of disgorged fish bones (for, like hawks and owls, the Kingfisher recasts the indigestible parts of its food), which has led some to suppose that it was of fish-bones that the nest was constructed; such however is not the case. The young, almost as soon as fledged, acquire the brilliant plumage of the adult, a circumstance not general. But

in the present case it is thus wisely ordained, because essentially necessary; for in plunging into the water in order to gain its subsistence, the Kingfisher absolutely needs this burnished surface for the purpose of throwing off the fluid, and thereby preventing the plumage from becoming saturated.

After quitting the nest, the young are led to some secure resting-place, where, clamorous for food, they tax the industry of their active parents; they are however soon able to fish for themselves. When winter drives the funny tenants of the rivers to deep and sheltered bottoms, the Kingfishers leave the shallow inland streams and pass towards the coast, frequenting dykes and the mouths of rivers, especially on our southern shores, and return inland with the return of spring.

The crown of the head, cheeks, and wing-coverts are of a deep green, each feather being margined with a lighter metallic hue; the rest of the upper surface brilliant azure, ear-coverts rufous, throat and back of the neck white; under surface fine rufous: length seven inches. The ancient poets indulged in many fables respecting this bird, but which have nothing to do with its history.

The last family of the Fissirostral tribe is that of the BEE-EATERS, (*Meropidæ*, VIG.)



HEAD OF A BEE-EATER.

The characters of the genus consist in the quadrangular, curved, and pointed form of the beak; nostrils small, and partly concealed by bristles directed forwards; tarsi

small and short ; outer and middle toes connected as far as the first joint ; wings long, and pointed.

The Bee-eaters have considerable resemblance to the swallows in their general habits and modes of life, their food being insects, which they take while on the wing, skimming and darting along with great rapidity : here, however, the resemblance ends ; for in other respects they are closely allied to the kingfishers, as is indicated by the form of the foot and tarsus, the elongated beak, the metallic brilliancy of the plumage, which when in the sun gleams like burnished gold, and by the mode of incubation. In most species the two middle tail-feathers considerably exceed the rest, and are slender and pointed. The genus contains numerous species, all confined to the warm or sultry climates of the Old World. The only European species furnishes an appropriate example.

The BEE-EATER, (*Merops apiaster*.) This richly coloured bird occasionally wanders as far as the British Isles, but never stays to breed. Its native habitat is the southern and eastern provinces of Europe, and the opposite continent of Africa, whither it appears to retire during winter, for it is a migratory visitor, appearing in Spain, where it is very abundant, during the first week of April, in flocks of forty or fifty, generally passing along at a considerable elevation, but sometimes, and especially in showery weather, approaching nearer the earth, or scattering themselves over fields and gardens in busy pursuit of bees, wasps, butterflies, and grasshoppers. Their note, uttered as they skim along, is a shrill whistle, heard at a considerable distance. From Spain, which country it enters by way of Gibraltar, the Bee-eater extends throughout the southern provinces of France, Italy, and the islands of the Mediterranean, taking up its abode along streams and rivers, where, like a blazing star, it may be seen coursing up and down in chase of its prey. In the country around Gibraltar they are said to be exceedingly numerous ; nor less so on the rivers Don, Volga, and Yaik, in southern Russia, as well as in all the adjacent

range of Tartary, in Palestine, and Arabia. In some places they retire southwards in August, in others in September, assembling together and performing their journey in flocks of thousands. Like the kingfisher, this bird builds in clayey or sandy banks, especially such as border rivers and streams, making a deep burrow, at the extremity of which the eggs, without any further preparation for their reception, are laid on the bare earth; they are of a pure white, and five or seven in number. It is also observed, that as the kingfisher recasts the bones and scales of fishes, so does the Bee-eater the wings and indigestible parts of its insect food rolled up into the shape of small pellets.

Latham informs us that in Egypt this bird is called *Melino-orghi*, or bee's enemy, and is there eaten for food.

Of its fondness for bees, and consequently the injury accruing to apiaries from its presence, the Roman poet Virgil seems to have been well aware; for in his *Georgics*, Book iv. line 14, he distinctly mentions it:—

“ Absint et picti squalentia terga lacerti
Pinguibus a stabulis, *meropes-que*, aliæque volucres;
Et manibus Progne, pectus signata cruentis.
Omnia nam latè vastant; ipsasque volantes
Ore ferunt, dulcem nidis immitibus escam.”

VIRG. *Geor.* iv. 13—17.

Place the rich hives where, deck'd with painted mail,
Nor lizards lurk, nor birds can yet assail,
The swift *Bee-eater*, and, amongst the rest,
The swallow, Procné, with her bloodstain'd breast,
Devourers fell, with cruel beak they seize,
While flitting forth, the honey-searching bees;
Then to their greedy nestlings bear away,
As a sweet morsel, the expected prey.

M.

The colouring of this species is as follows: forehead yellowish white, merging into bluish green; back of the neck and upper part of the back rich chestnut, passing off into brownish amber; ear-coverts black; wings greenish, with an olive tinge, and a large band of brown across the middle; quill-feathers inclining to blue, and ending in black; throat bright yellow, bounded by a black line;

whole of the under surface blue, with reflections of green. Length eleven inches.

The Fissirostral tribe may be thus concluded. But, before entering upon the next, we would beg our reader to review what has been thus imperfectly sketched, and then to consider whether the power, wisdom, and goodness of the Almighty are not most strikingly displayed.

Of all races of beings on the surface of our globe, insects if unchecked in their increase would become the most efficient in rendering this earth a desert, and man an abject savage, glad to seek shelter in caves or dens from their cruel persecutions. Such a picture is not that of fancy; the ravages of the locust, of the Hessian fly, of aphides, and of those microscopic beings which blight the hopes of the husbandman; the more direct injuries experienced from other tribes, which, in some countries absolutely drive man and beast before them,—proclaim the extent to which, if unchecked, their power would arrive. The following is from Kirby and Spence's Introduction to Entomology.

.... “The numerous tribes of insects are His armies, marshalled by Him, and by His irresistible command impelled to the work of destruction; where he directs them, they lay waste the earth, and famine and pestilence often follow in their train.

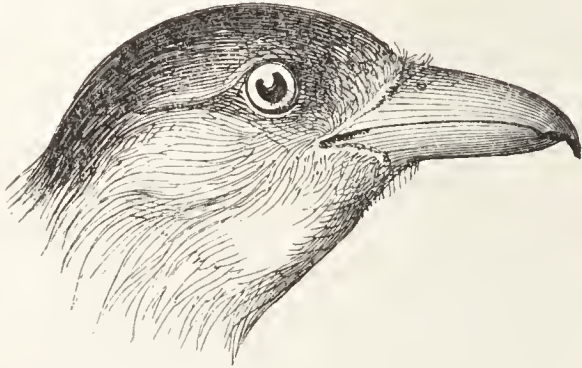
“The generality of mankind overlook or disregard these powerful, because minute dispensers of punishment, seldom considering in how many ways their welfare is affected by them: but the fact is certain that, should it please God to give them a general commission against us, and should he excite them to attack at the same time our bodies, our clothing, our houses, our cattle, and the produce of our fields and gardens, we should soon be reduced in every possible respect to a state of extreme wretchedness, the prey of the most filthy and disgusting diseases, divested of covering, unsheltered except by caves and dungeons from the inclemency of the seasons, exposed to all the extremities of want and famine, and in the end, as Sir Joseph Banks, speaking on this subject, has well ob-

served, driven with all the larger animals from the face of the earth. You may smile, perhaps, and think this a high-coloured picture; but you will recollect, I am not stating the mischief that insects commonly do, but what they would do, according to all probability, if certain counter-checks restraining them within due limits had not been put in action; and which they actually do, as you will see in particular cases, when those counter-checks are diminished or removed. Insects may be said without hyperbole to have established a kind of universal empire over the earth and its inhabitants: this is principally conspicuous in the injuries which they occasion, for nothing in nature that possesses or has possessed life is safe from their inroads."

To check the increase of these destroyers, then, has God, among other agents, appointed the feathered tribes, and especially that tribe which we have just reviewed. With one exception, the kingfishers, all its members are actively engaged in thinning the insect hordes; but they are not alone in this important work: we shall find others also co-operating with them, and thus labouring in their station to maintain the balance of organic beings, to the end that order and harmony may ensue. How infinite in number, how intricate in their bearings and relationship, in their causes and effects, are the wheels and springs of this mundane machine! Were God to leave it to the uncontrolled chances of a single day, all would rush into ruin and disorder—"chaos and night resume their ancient reign." But He "who weigheth the mountains in scales, and the hills in a balance," cannot fail, "for his mercy endureth for ever." From the harmonies of nature ever let us turn to the harmonies of grace; those harmonies are exhibited in the mediatorial work of Christ, by which guilty man may receive pardon and justification, and offended justice be fully satisfied. The sufferings and obedience of Jesus Christ were the penalty paid for man's recovery, recovery from the danger of punishment for sin, recovery from the dominion of sin itself, recovery of the favour of God, and of a bright inheritance incorruptible and eternal; "for His mercy endureth for ever!"

TRIBE II. DENTIROSTRES.

The tribe called Dentirostres is distinguished, as the name at once indicates, by a notch or slight tooth on each side of the upper mandible of the bill near its point, thus :



In some genera this tooth is so trifling as to be almost imperceptible, while in others it is tolerably strong and well defined ; and it may be observed that where this is the case, the disposition accompanying it will be found to approach in fierceness and spirit to that of the birds of prey. The beak, however, does not vary only in the degree of developement exhibited in the tooth, but likewise in shape, strength, and size. In some, as in the shrikes, it is strong, and compressed laterally ; in others, as the flycatchers, depressed ; in others again, slender and pointed : but in all these cases the gradations from one form to the other are so imperceptible, that it becomes difficult to fix the limits or boundaries of the natural groups. As it respects food and habits, most are insectivorous ; but many also add berries and various fruits to their diet.

FAMILY THE FIRST.—LANIADÆ, VIG., or the Shrikes. This numerous family is widely dispersed, its various genera being respectively distributed throughout every part of the globe : all are insectivorous, and some even attack small birds and mammalia, displaying unexpected spirit and ferocity. The beak is strong, decidedly toothed,

compressed laterally, and often pointed, but in many genera hooked at its tip. Indeed, so many characters do the typical forms of this family exhibit analogous to those of the birds of prey, that both Ray and Linnæus placed the genus *Lanius* in that very order; and even M. Temminck hesitated whether to withdraw them or not from that situation in his “*Manuel d’Ornithologie*.”

The last tribe was concluded with the *Meropidæ*, of which the common bee-eater was selected as an example. In proceeding to the present tribe, or rather to its first family, the *Laniadæ*, the transition is such as is ever in accordance with the laws of nature, that is, gradual and easy; for among the genera into which this family is divided is one allied in many points to the bee-eaters, in others to the swallows, and in its notched beak and courageous habits, to the Shrikes, among which it obtains a place. The genus is that termed by Cuvier *Ocypterus*, (in allusion to the rapidity of flight,) a genus containing several species peculiar to India and the islands of the Indian seas. The beak is pointed, conical, and slightly notched; the wings are long and pointed, reaching beyond the tail; the tarsi short; the tail in some species square, in others its two middle feathers are somewhat elongated, as in the bee-eaters. This length of wing gives their flight much resemblance to that of a swallow; nor are the general form and contour of their bodies less similar: hence have they received the name of Swallow Shrikes, (*Pies-grièches-Hirondelles*,) and also of Wood Swallows. They are among the most rapid and active of the feathered race, being ever on the wing in pursuit of their insect food, and, with a spirit little in accordance with their size, they attack and drive away much larger birds, and even the raven, from their territory. Like the king-bird of America, their swiftness and the dexterity of their evolutions are their advantage. Little is known respecting the minuter details of their history, or of the shades of character in which the species differ among themselves; still the following sketch of one of the species (*Ocypterus leucorhynchus*) may not be unacceptable, as showing how nearly its form resembles that of our well known

swallows. The colour of this species is as follows : beak whitish, with a tinge of dull blue ; upper surface, brownish



THE OCYPTERUS.

black, with the exception of the tail-coverts, which are white ; under surface dull brown. Length nearly seven inches.

Passing from the genus *Ocypterus* to the more typical forms of the present family, the restricted genus *Lanius* demands attention. This genus is characterized by the strength of the beak and the developement of the tooth ; the wings being moderate and rounded, and the tail varying, being in some species graduated, in others square. This diversity in the form of the tail has led to a subdivision of this genus into two ; that group distinguished by a graduated tail being termed *Collurio*, the other *Lanius* ; a mere refinement of systematizing.

Take as an example the GREAT SHRIKE of Europe, (*Lanius excubitor*.) This beautiful and spirited bird is only an accidental visitor to the British isles, where it may be regarded as migratory, in some seasons appearing in considerable numbers, but in others being extremely rare. In France and other parts of the continent it remains stationary throughout the year.

The Great Shrike preys chiefly on the larger sorts of insects, such as beetles, dragon-flies, &c., which, as is also the case with others of this family, it is in the habit

of impaling on thorns or sharp spikes, leaving them to be devoured at leisure, or proceeding immediately to tear them to pieces, as its appetite may incline it. Hence, from their cruelty, and the mere wantonness of destruction which they manifest, have this species and its relatives received the name of Butcher Birds. But in addition to insects, the Great Shrike preys upon frogs, mice, and small birds, which it attacks with great ferocity, destroying them by piercing the brain or by crushing in the skull with its powerful bill, grasping them at the same time with its toes, which, though slender, are armed with sharp claws, and are capable of firm compression. It does not, however, use them for striking, as the hawk, but merely for securing its victim.

The specific name of *excubitor*, or sentinel, was given to the present bird by Linnæus, for its vigilance in watching against hawks or birds of prey, whose approach it is ever the first to perceive, at the same time making it known by a querulous chattering, indicative no doubt of anger and fear. Hence it is commonly used on the continent by persons engaged in the capture of the peregrine falcon, during the migrations of that bird, in order to give warning of its appearance. The lure, a live pigeon secured by a string, is thrown out as soon as the Shrike proclaims the approach of the dreaded falcon, who, the moment he perceives the pigeon, pounces upon it, and refusing to give up the prize he has grappled, is gradually drawn into a trap-net artfully placed for his reception. As for the Shrike, it retreats while the danger is near into a box or hole constructed for it, and keeps up an incessant clamour till the redoubted foe is secured, when it comes out, and, should the occasion offer, repeats its warning as before.

The favourite localities which this bird frequents are thick hedges, coppices, and plantations, among which it breeds, building its nest of dried grasses and vegetable fibres. The whole of the upper surface of the present species is fine bluish gray; a black stripe passes from the base of the bill and covers the ear-feathers; the wings are black, with a white bar in the middle; the tail is graduated; the two outermost feathers are white; the rest

are black, tipped with white, except the two middle, which are wholly black: the under surface white, the female having obscure dusky transverse lines across the chest; beak and tarsi black. Length nine inches.

Among the more remarkable of the foreign genera, that termed Vanga (distinguished by the size, compressed form, and hooked point of the bill, which is exceedingly strong and powerful) may be noticed, as containing a very singular bird from Australia, the New Holland BUTCHER BIRD, (*Vanga destructor*,) so called from its ferocity and daring. We have seen one of these birds in captivity, when a live mouse or small bird has been exhibited in its presence, dart with the utmost eagerness and impatience about its cage, uttering at the same time a clamorous chattering, and evincing the utmost state of excitement. If the mouse were placed within its reach, it would seize it behind the head with astonishing rapidity and address, by means of its bill, and strangle it with every indication of exulting triumph. The victim being thus dispatched, it would next proceed to fix its body tightly between the wires of its cage, putting the head out at one space, turning it over the wire, and bringing it in at the next space, so as to render it capable of bearing a firm pull, before proceeding in its work of tearing it to pieces. No doubt, when at liberty, the Vanga destructor impales its victims upon a sharp spine, or fixes them between the prongs of cleft branches, in order to devour them, as is the case with the European Shrike, and it only adopted the mode described because such instruments were not accessible. This, however, was not the only singular trait in the bird alluded to. As if to prove how easily a bad heart and an accomplished exterior may be united, the voice of the Vanga destructor is full and musical, and its imitative powers of a first-rate description; it copies, with great precision, a tune, the cries of other animals, the voices of parrots, and the notes of birds. The writer heard the individual alluded to perform a part of one tune in particular, "Over the water to Charlie," which it executed with much spirit and melody whenever excited.

Of the native manners of this curious bird we have but little information. It is said to skulk among bushes and low shrubs, prying in search of insects and small animals, and pouncing upon them by surprise, as indeed its short and rounded wing, ill adapted for rapid flight, together with its lengthened tarsi, indicative of terrestrial habits, might lead us to expect.

Closely allied to the Vanga, and principally to be distinguished by an increased length of tail, is the genus *Thamnophilus*, containing the Bush Shrikes of South America.

Our limits prevent our even hinting at all the genera this extensive family contains: we may, however, notice that termed *Dicrurus*, consisting of the Fork-tailed Shrikes, a group chiefly confined to Africa and India; the genus *Irena*, peculiar to the Indian islands, and containing that exquisitely coloured bird, the Fairy Shrike, (*Irena puella*, Horsf.) of which the back is of a metallic ultra-marine blue, exceedingly brilliant and intense, contrasting with the velvet black of the rest of the plumage; the genus *Falcunculus*, of Australia; and other forms well worthy the attention of the naturalist, such as the Puff-backed Shrikes of Africa, and the genus *Psaris* of meridional America.

The next family is that of the Flycatchers.

FAMILY THE SECOND.—FLYCATCHERS, (*Muscicapidæ*.) With habits allying them, to a certain extent, to the shrikes, the Flycatchers differ in having the bill depressed horizontally, (a character in which they approach the todies, (*Todidæ*), as one or two of the genera in particular exemplify,) and garnished with bristly hairs at its base. The wings are more or less rounded. Though the larger species emulate or even exceed some of the shrikes in spirit and intrepidity, driving away from the precincts of their nests birds far superior to themselves in size and strength, still they seem to be less terrestrial in their habits, less inclined to skulk among the foliage of bushes and underwood, and more rapid in their flight. The smaller species live exclusively on insects, which they

take upon the wing, launching from a branch selected as an observatory, and returning to it again after each short but successful chase. The larger species add also small birds and quadrupeds to their fare. The genera are pretty numerous. The subjoined sketch may be taken as a fair example of the typical form of the beak.



The genus which forms the bond of union between the present family and that which preceded, is characterized by a straight, long, and powerful beak, hooked abruptly at its tip, moderate wings, and square tail, together with a stature equalling that of our butcher birds. The species are natives of America, where they are celebrated for their spirit and courage, hesitating not to attack even the eagle in the defence of their young, and maintaining a sort of dominion over most of their feathered competitors. Hence has the genus received the name of *Tyrannus*, (Cuvier.)

As the most appropriate example, may be selected the TYRANT FLYCATCHER, or King Bird, (*Muscicapa tyrannus*, BRISS.; *Tyrannus*?)

This interesting bird, which in some of the southern states bears the name of Field Martin, is one of the migratory visitors to the United States, arriving in Pennsylvania about the 20th of April, and in Louisiana about the middle of March, returning southwards on the approach of autumn. The appellation of King, as well as

Tyrant, “has been bestowed,” says Wilson, “on this bird for its extraordinary behaviour and the authority it assumes over all others during the time of breeding. At that season his extreme affection for his mate, and for his nest and young, makes him suspicious of every bird that happens to pass near his residence, so that he attacks without discrimination every intruder. In the months of May, June, and part of July, his life is one continued scene of broils and battles, in which, however, he generally comes off conqueror. Hawks and crows, the bald eagle, and the great black eagle, all equally dread a rencounter with this dauntless little champion, who, as soon as he perceives one of these last approaching, launches into the air to meet him, mounts to a considerable height above him, and darts down on his back, sometimes fixing there, to the great annoyance of his sovereign, who, if no convenient retreat or resting-place be near, endeavours by various evolutions to rid himself of his merciless adversary. But the King Bird is not so easily dismounted. He teases the eagle incessantly, sweeps upon him from right to left, remounts, that he may descend on his back with the greater violence, all the while keeping up a shrill and rapid twittering, and continuing the attack sometimes for more than a mile, till he is relieved by some other of his tribe equally eager for the contest. There is one bird, however, which, by its superior rapidity of flight, is sometimes more than a match for him; and I have several times witnessed his precipitate retreat before this active antagonist: this is the purple martin, one whose food and disposition are pretty similar to his own, but who has greatly the advantage of him on wing, in eluding all his attacks, and teasing him as he pleases. I have also seen the red-headed woodpecker, while clinging on a rail of the fence, amuse himself with the violence of the King Bird, and play bo-peep with him round the rail, while the latter, highly irritated, made every attempt as he swept from side to side to strike him, but in vain. All his turbulence, however, vanishes as soon as his young are able to shift for themselves; and he is then as mild and peaceable as any other bird.”

The skirts of woods, orchards, gardens, and fields of clover, are the favourite haunts of the King Bird; perched on a branch, or stake, or tall weed, all energy and alertness, he glances around in search of the passing prey; in a moment, off he darts, now sweeping close to the verdure of the field, now mounting in graceful undulations, or turning short, with abruptness; now to the right, now to the left, snapping at the insects as he passes, when, having secured his booty, he returns, either to the same or to an adjoining watch-tower, to look out for another chance. One of his especial dainties is a species of large black gad-fly, peculiarly terrifying to horses and cattle, and the destruction he occasions among these pests, as well as among the hordes of insect torments to man and beast, more than counterbalance the injury he may do by now and then snapping up a bee, flitting in search of honey, of which he is also very fond. Like the swallow, this interesting bird delights to sweep over the surface of rivers, chasing the insects which dance in the air above, and every now and then dipping and emerging, shaking the spray, as he rises, from his rapidly vibrating wings, and then perching upon some near branch to dress his plumage. As evening comes on, numbers may be seen thus engaged on the rivers Delaware and Schuylkill, during the calm and warmth of summer. The nest of this bird is built on branches of trees, often of such as grow in the orchard, at no great distance from the ground. The outside consists of twigs and vegetable fibres, having an inner layer of cotton, wool, or tow, of great thickness and well matted together, the whole being lined with fibrous roots and horse-hair. The eggs are five or six in number, of a reddish white, spotted irregularly with brown.

The King Bird is eight inches in length, and fourteen in extent of wing. The general colour of the upper parts is dark bluish gray, inclining to dull slate black on the head, of which the central feathers along the crown form a rich flame-coloured patch, margined with yellow (a character more or less peculiar to the genus.) The quill-feathers and secondaries are brownish, tipped with dull white; tail brownish black, tipped with white; chest

grayish white, becoming pure on the throat and under surface; bill black; tarsi dull gray.

Leaving the genus *Tyrannus*, we proceed to the genus *Muscipeta*, characterized by the singular depression of

THE PARADISE FINCHCATCHER.



the beak and the long bristles which fringe its base, many species having a long crest, and two elongated tail-feathers extending beyond a graduated tail. Of this genus, almost

exclusively confined to India and Africa, the PARADISE FLYCATCHER (*Muscipeta Paradisi*, CUV.) may be selected, of which two varieties, if indeed they be not distinct species, occur. One is distinguished by the chestnut colour of the back and wings, the under surface being white and the head and crest rich violet black; the other is white with black edgings to the quill-feathers, and a head and crest like the former. In both cases the males are distinguished by the extraordinary elongation of the two middle tail-feathers; the size of the body is equal to that of a lark.

These elegant birds are natives of India; their food consists of the softer kinds of insects, which they take by short flights, and often on the ground. They are said to sing very sweetly. The sketch we have given is taken from the chestnut-coloured variety, which some authors have called *Muscipeta Indica*, considering its specific distinctiveness as indubitable.

Besides the elegant birds just alluded to, India also presents us with a race of richly coloured Flycatchers, whose plumage of inimitable scarlet and black produces the most striking effect; as seen while flitting in pursuit of insect prey, the birds open their wings to the sun. They constitute the genus *Phænicornis*, distinguished by the comparative stoutness of the beak and its trifling compression; and by the graduated tail, as well as by the minor character of close similarity of colouring. Three species have been figured by Mr. Gould in his "Century of Birds from the Himalayan Mountains," which, with another, constitute all at present known. Of these the *Phænicornis princeps* is the most superb; the head, upper part of the back, the shoulders, quill-feathers, and two middle feathers of the tail being glossy black; the lower part of the back, the centre of the wings, the whole of the under surface, and rest of the tail, brilliant scarlet. The scarlet of the males is, in this as well as the other species, exchanged for orange yellow in the females.

The last genus to which our readers' attention is invited

is that of *Muscicapa*, containing the British species, with which we are most familiar. It is distinguished by a narrow slender beak, but little depressed, and fringed with short bristles; the tip being slightly hooked. The tail is square.

Of this genus the SPOTTED FLYCATCHER (*Muscicapa grisola*) has, we doubt not, been noticed by most of our readers. It is one of our summer birds of passage, retiring early in autumn, as soon as its young are capable of providing for their own subsistence. Of plain unadorned livery, and without any pretensions to song, this little bird is nevertheless peculiarly interesting from its familiarity, and active, sprightly manners. Few of our gardens, lawns, and orchards are without two or three pairs of Flycatchers, busily engaged in providing for the wants of their nestlings. Perched on the twig of one of the lower branches of some tall tree, or on the bough of a fruit-tree in the garden, it may be observed glancing its eyes around in quest of prey, and every half-minute darting away in the pursuit; when, having taken a short sweep, it returns to its station again. On a fine summer's evening, when the insect tribes are all abroad, it may then be seen intent upon its appointed work, and will often keep to the same twig as its observatory, flitting on the chase and returning at nearly regular intervals, for fifteen or twenty minutes together. The writer watched, in the summer of 1832, a pair of these birds, on the top of Richmond Hill, which overlooks the rich prospect below, continue thus engaged for nearly half an hour, the same or an adjacent twig being invariably returned to, after each short flight. Insects of the softer kinds, such as gnats and flies, are the sole food of this bird; hence its services in our gardens. It is indifferent in the selection of a place for its nest. A pair has been known to build close to a chamber window, between the wall and the branch of a trained pear-tree; holes in trees, or walls, or a large rugged or moss-grown branch close to the stem, are all equally acceptable. The eggs are five in number, of a pale, dusky, greenish colour, marked with reddish spots. Crown of the head, brownish,

obscurely spotted with black ; back, mouse colour ; wings and tail, dusky, the feathers being edged with white. The whole of the under surface, white ; the throat and sides being dashed with spots of reddish brown. Bill, dusky ; the inside of the mouth yellow. Size of a redbreast.

Besides the above species, there is also another summer visitor of this genus, namely, the **PIED FLYCATCHER**, (*Musicapa luctuosa*, TEMM.) one of the rarest British birds. It appears to be local in its visits, being by no means universally dispersed ; for though it has been seen occasionally near London, it is by far the most common in Yorkshire, Lancashire, and Derbyshire. Some years since, the writer saw a pair, busy in chase of flies, in a small wood, in Cheshire, on the border of the latter county. Its manners are generally similar to those of the preceding, and need not be further detailed. It is, however, a much smaller bird, being only four inches and three-quarters long ; the other being nearly six. Its eggs are said to be of a bright pale blue. According to M. Temminck, the moult in this bird is double, occurring in autumn and again in spring. In autumn, the male assumes a livery like that of the female, from which he is then scarcely to be distinguished ; but in spring, he assumes, by another moult, his characteristic plumage, which is as follows :—The forehead, a large band across each wing, occupying the secondaries, and the edge of the outer tail-feather on each side, are pure white ; the rest of the upper surface is jet black ; the under surface is white. The female, as also the young, are destitute of white, and have the upper surface of an ashy brown. This species is very abundant in central France, in Italy, and along the Mediterranean ; and thousands are annually killed for the table in October, under the name of *Beccafica*, or *Bec-figue*. Under this term is also included a closely allied continental species, (*M. albicollis*,) of which the male is distinguished in his summer dress by a white collar round the neck.

Thus closing this interesting family, from whose services man derives no trifling benefit, we proceed to another

bearing in many respects a close relationship to it, inasmuch as all feed more or less entirely on insects, and are characterized by a beak, straight, slender, pointed like a bodkin, sometimes slightly depressed above ; they constitute the third family of our present tribe.

FAMILY THE THIRD.—The SOFTBILLED WARBLERS (*Sylviadæ*). The family of *Sylviadæ* contains a great multitude of birds at present imperfectly arranged, few systematic authors agreeing in the formation of the minor groups. It is here we find the choicest of our summer birds of song, whose voices resound through the groves and woodlands, swelling the universal hymn of Nature's praise to that great God who guides the seasons as they roll, and furnishes a repast for these pensioners on his bounty, though "they toil not, neither gather into barns ;" guiding them in their southward and their northward flight, and teaching such as are stationary how to change their diet with the changing year. Here we find the sedge bird, the whitethroat, the garden warbler, the wren, the nightingale, and many more ; and if, in the selection of examples, numbers of exceeding interest, both native and foreign, are passed unnoticed, let the reader remember that a sketch, even of the principal groups, is all our limits will allow ; and that, were a full history of each of the species which make up the numerous genera of this single family to be attempted, many volumes would not contain the matter. Our aim is rather to trace the leading points of a system, than minutely to fill up the details. From among the *Sylviadæ*, for such birds as approach nearest the flycatchers in habits and manners, as well as in the slightly depressed form of the beak, may be selected the birds constituting the genus *Saxicola*, (Bechst.,) such as the Wheat-ear, Stone-chat, Whin-chat, &c. It is true that the tarsi are considerably elongated, so as to fit them for terrestrial habits ; still, insects constitute their sole subsistence, which they either seize as they run along with nimble celerity, or by darting at, upon the wing ; making a short flight and settling again. Downs, furze-covered commons, and stony moorlands are their favourite

abodes ; they are active and lively, and ever upon the alert in chase of their insect prey. In Europe they are all birds of passage ; different species are peculiar to Asia and Africa ; but none have hitherto been discovered in the American continent. The two following are examples.

The WHIN-CHAT (*Saxicola rubetra*, BECHST.) is one of our summer visitors, and is equally dispersed through a great part of Europe, advancing pretty far northwards. It appears in April and leaves us early for a warmer climate, passing over to the northern coast of Africa till its appointed time of return. Commons, wide open fields, and heaths are its residence ; and in some counties it is peculiarly abundant, its well known cry of *u-tick, u-tick*, resounding from every bush and hedgerow ; these syllables it utters with a singular jerk of the tail, repeating the last syllable two or three times in succession, and the next moment flitting to a distant spray, and reiterating its cry as before : most probably this is a note of distress or apprehension, lest its nest should be discovered and robbed of the eggs or young. The Whin-chat takes its food principally on the wing, darting at it from the top of some low bush or twig of thorn in the hedge, and settling, after a short flight, on another within thirty or forty yards' distance.

Active and sprightly in its manners, this pretty little visitor, though possessing but a trifling song, is one of the most engaging of the smaller birds of passage. Its attention to its mate upon the nest, its unwearied industry, and the pleasing distribution of its colours, combining to render it a general favourite. The nest is made of dried grass and vegetable fibres, and placed on a bank among the roots of tangled shrubs, or at the foot of some thick bush which affords the requisite concealment. The eggs are greenish blue, minutely speckled at the larger end with reddish brown.

The whole of the upper surface is of a yellowish brown, each feather having a central dash of brownish black ; and a large spot of white occupying the centre of each wing. A broad streak of white passes above the eyes,

while the cheeks and ear-coverts are black ; the throat, the sides of the neck, and the basal half of all the tail-feathers, except the two middle, are also white, the rest of the tail being black ; chest, fine light rufous. The female wants the black on the cheeks, and the white on the wing ; the white streak over the eye is much reduced, and the general colours of the plumage are much less pure and distinct.

The WHEATEAR (*Saxicola ænanthe*, BECHST.) is too celebrated a bird to be passed by in silence. It is a bird of passage, and is abundant in most parts of Europe, but especially Holland. In England it frequents downs, sheep-pastures, plains, and commons in great multitudes, scattering over the country for the purpose of breeding, and collecting again after the young are reared ; it then withdraws to the southern coast, waiting for a favourable opportunity of passing to the opposite shores. On visiting the downs of Kent and Sussex, about the middle of September, we shall not fail to be struck with the multitudes spread over the country, and increasing in numbers daily, by the arrival of fresh accessions. At this season they are caught by thousands, in snares and traps, for the table, being highly esteemed as delicacies. About Eastbourne they especially abound, and are taken in snares of horse-hair, to the amount, as Latham states, of more than one thousand eight hundred dozens annually. A single shepherd has been known to take eighty-four dozens in a single day. See Lin. Trans. vol. iv. p. 17. The Wheatear builds its nest on the ground, under the shelter of a turf, or stone, and not unfrequently in the mouth of a deserted rabbit burrow, constructing it of dry grass, moss, and hairs ; the eggs are of a light greenish hue, and five or six in number. The food of this bird consists of insects, especially of the coleopterous order, larvæ, and worms. On examining many killed on their first arrival, the stomach has been found filled with the hard coverings of coleopterous insects, and that too in weather so cold and unpromising (the middle of March) as to render it surprising how such food could be obtained. The bodies

have been almost invariably so loaded with fat, that the plumage has in many instances been spoiled by its oozing from the shot wounds.

In the adult male, the top of the head and the back are fine gray, a white line passes from the beak above the eye, succeeded by a black band, which, extending from the beak, surrounds the eye, and occupies the ear-coverts. Lower part of the back and two-thirds of the tail white; the tip and two middle tail-feathers black; wings black; chest delicate fawn colour, fading into white. The female wants the white superciliary mark, and the black stripe over the ears is exchanged for dull brown; the plumage generally is of a duller tint. The wings are brownish, and the under parts reddish, becoming gradually white.

From the genus *Saxicola*, we pass to that of *Erythaca*, (Swains.) of which the Redbreast is the type. The beautiful *Blue-birds* of America, forming the genus *Sialia*, (Swains.) are its representatives in the new world; and, indeed, offer so close an affinity as to render their generic separation almost a matter of doubt, the difference consisting principally in the proportion of the quill-feathers and the comparative shortness of the tarsi.

The REDBREAST, (*Erythaca rubecula*,) unlike its allies the *Saxicolæ* or the members of the following genus, braves the severity of a British winter, and forbears to migrate. It is, indeed, stationary throughout the whole of Europe; "When summer leaves are green, and summer days are bright," this interesting little bird is shy and unobtrusive; large gardens, orchards, coppices, groves, and woods being then favoured by its presence. Hence it is seldom noticed, and its song is lost in the general chorus. It is now busy in preparing its nest, or in rearing its young; its food, which at this season may be said to consist exclusively of insects and caterpillars, abounds on every side, and the observant lover of nature may see it intent on providing for its mate and young, duties which call forth all its activity. Circumspect and apprehensive, yet not timid, it refrains

from going direct to the nest while the eye of the observer is upon it, yet will often suffer itself to be looked at while on the nest, without quitting it, returning the



THE REDBREAST.

gaze of the spectator with a scrutinizing glance of its full black eye. The nest is variously placed; the writer has known it frequently build among the ivy covering a gardener's tool-house, and return annually to the same spot; its nest has been found in a bank side, and among the roots of tangled brushwood. The young, on leaving the nest, are olive brown, each feather having a little triangular dot of dull reddish colour; the under surface of the body being dusky white.

When the task of incubation and of rearing the brood is all over, and the first signs of approaching autumn begin to warn its migratory relatives that it is time to prepare for departing, the Redbreast becomes more familiar; he now hops up and down the garden walks, or traverses the grass plat in search of insects, and stoutly

tugs at any unfortunate worm which may chance to appear half in and half out of the ground. Winter drives him still nearer to the habitations of man; pert and lively, he hops around our door, and changing his food with the necessity of the season, picks up the crumbs of bread, which many make a point of scattering, that the “little trooping birds” may partake of those comforts with which a kind Providence has blessed their table. Cold as the season may be, covered as the ground may be with snow, the Robin is neither dull nor dispirited; let the gardener, after digging, leave his spade stuck in the ground for an instant, there he is perched upon it, peeping down in hopes of a prize; let the door of the outhouse or kitchen be open, and in he enters; and at our frost-dimmed window, as soon as morning dawns, is heard his clear and lively song. He is a general favourite; his sprightliness, his beauty, his cheerful carol, and familiar visits to man, when “summer birds are flown,” have won for him a welcome every where; to say nothing of a place in the pages of our first descriptive poets. We must, however, forbear to say more about him, and proceed.

The genus *Erythaca* leads by a natural transition to that of *Phænicura*, (Swains.) a genus also confined to the old world, and comprehending but few species; they are, however, well characterized.

The typical example of this genus is the REDSTART. (*Phænicura ruticilla*.) The Redstart is one of the most elegant of the migratory warblers; the black, white, gray, and flame colour which ornament its plumage being conjoined with a graceful form, and active sprightly manners. In this respect it is not unlike the redbreast, but is more frequently seen to dart at its insect food while passing; accompanying every action with a peculiar vibratory motion of the tail, which is continued for several seconds on its alighting, suspended while it trips along the ground, but resumed the moment it stops. Besides insects, the Redstart, as well as the redbreast, sometimes adds berries to its diet.

This animated little bird is by no means recluse or shy, but frequents gardens and orchards, close to the habitation of man, building in a hole in the wall, or between the wall and branch of a fruit tree, in a shed, or tool-house, in short, wherever a convenient place affords. A pair built for two years in a hollow ornamental vase in a garden. The eggs are of a fine greenish blue. The song of the Redstart is very pleasing, though somewhat hurried. Gilbert White considers it superior to that of the whitethroat, which, after all, is no great compliment; it is, in fact, sweet, though neither loud nor brilliant. Arriving in April, it leaves England towards the latter end of September.

The plumage of the male is as follows. Forehead banded with white, stretching from eye to eye, below which is a stripe of black, which spreads out so as to occupy the sides of the face and ear-coverts, the throat, and chest. Back fine bluish gray; wings and two middle tail-feathers brown; tail-coverts, and the rest of the tail-feathers, brilliant flame colour, as is also the under surface; but there this rich hue fades off as it proceeds to dull white. The female differs considerably, her general plumage being of one uniform grayish brown, with the exception of the tail, which is dull rufous.

Of the other species of this genus, we may particularize the TITHYS, or Grey Redstart, (*Phœnicura Tithys*,) the INDIAN REDSTART, (*Ph. atrata*,) the BLUE-FRONTED REDSTART, (*Ph. frontalis*, VIG.) also from India, and four or five new species from the Himalayan mountains.

We may now advance to the genus *Curruca*, (Bechst.) distinguished by a straight and slender beak, compressed at the point; it contains the most celebrated of our birds of song.

Of these the NIGHTINGALE (*Curruca luscinia*) cannot be passed by without notice. This delightful songster seldom visits England before the latter end of April or

the beginning of May, and departs in August, favouring us with its residence during the warmer season only of the year. Its localities, also, are as limited as its stay. In the midland counties it is scarce, in the northern but occasionally heard, and in the western, namely, Devonshire and Cornwall, almost unknown. As is the case with all the migrating birds of the extensive family *Sylviadæ*, the males are the first to venture across the channel, when they disperse over the country, resorting to thick hedges, copses, and plantations, where their song resounds at eve, and where they wait the arrival of their expected mates. The females follow in a few days, though not always, for it sometimes happens that cold winds and unpropitious weather delay their arrival for ten days, or even a fortnight. Nothing can be more artfully constructed than the nest of this bird; and so well is it concealed, that it is one of the most difficult to discover. The outside is composed of dried leaves or grass, or of the skeleton-leaves which strew the banks and thick bottoms of hedges; the inside is lined with hair and soft fibres. Thus calculated to deceive the eye, it is placed low down in a thick bush, or hedge of luxuriant growth, amongst intertangled stems. The eggs are five in number, and of a greenish brown. Dr. Latham states, that, as is usual among the migrating warblers, the male bird “remains on the spot to which it first resorts, attracting the female by its song; and if by accident the female is killed, the male, which had become silent, resumes his song, and will continue to sing late in the summer, till he finds another mate, in which case they will breed at a later season.” To this observation may be added, that it is only prior to the work of incubation that the notes of this bird are poured forth in their fullest melody: at the latter end of the season, before departure, its voice degenerates into a hoarse, unmusical note.

The Nightingale is spread over the greatest portion of the European continent and the proximate parts of Asia, though not to any great extent eastward of the border line. It is by many supposed to be the bulbul of the Persian poets: this is not the case; the melodious bulbul

is a species of the genus *Ixos*, a genus nearly allied to the *Thrushes*, being intermediate between them and the *Sylviadæ*. In fact, the Nightingale is not a native of India or Persia; the ixos or bulbul there taking its place as the “leader of the feathered choir.” Sonnini tells us it is found in Lower Egypt. Thus from England, through Germany, Poland, France, Italy, and Palestine, is this unrivalled songster of the western regions of the old world distributed. Who would think of such a bird being ever destroyed to swell the luxuries of the table? Yet we read of Heliogabalus feasting on dishes made of the tongues of Nightingales; and Clodius Æsopus had a dish of the tongues of singing birds, among which those of Nightingales were included: this dish, according to Pliny, cost about six thousand eight hundred and forty-three pounds ten shillings of our money. What folly, and degrading luxury!

To keep the Nightingale in captivity is very difficult, and it is well that it is so. Why should we imprison the free born tenant of the air for our gratification? Why feast our ears upon the instinctive song of a prisoner torn from his mate, and fluttering to visit his grove, and finish his half-built nest? Must the desires of man, carried out into the extreme, be pampered at the expense of the lower creatures? We are apt to consider such animals as being of little value, or as utterly insignificant. Not so are they in the eyes of Him, without whose permission not even a sparrow falleth to the ground. To pursue the history of this bird, the favourite of poetry, Milton’s

“wakeful bird, that sings darkling,”

would be superfluous. Its general plumage is of a reddish brown, becoming pale ash colour below.

Closely allied in form to the nightingale, are three species peculiar to the continent, of whose habits and manners, however, we have no detailed account. These are the *Curruca philomela*, *C. sericea*, and *C. orphea*. See Temminck’s “Manuel d’Ornithologie,” vol. i. p. 196, 197, 198.

Under the same genus are placed also the Blackcap, the Greater and the Lesser White-throats, the Garden Warbler, or Greater Pettychaps, and several foreign species.

The BLACKCAP (*Curruca atricapilla*) is scarcely inferior to the nightingale in his song, not only possessing a variety of rich and mellifluous notes, but also the power of imitating the voices of various other birds (different as they may be to his own) so admirably as to deceive the listener. It is, however, a very shy bird, and though frequenting gardens and groves, near human habitations, generally keeps itself concealed among the most umbrageous foliage. Insects, and the berries of our fruit trees, such as currants, and gooseberries of the smaller sort, constitute its food. The general plumage is brownish olive gray, the top of the head being black in the male, and reddish brown in the female.

To the genus *Accentor* (characterized by a more conical form of beak) belongs the well known HEDGE SPARROW, (*Accentor modularis*,) whose nest abounds in the hedges of our fields and gardens, containing eggs of a beautiful azure blue, too often becoming a prize to the thoughtless schoolboy. Unlike most of the *Sylviadæ*, this little warbler, whose notes, though soft, are exquisitely sweet, braves our winters, picking up a random meal, the larvæ of insects concealed in the crevices of bark, berries, seeds, and bread crumbs. Caterpillars in summer are eagerly sought for; hence this bird is a useful inmate of the garden.

The restricted genus *Sylvia* next claims notice. Besides the slender pointed bill, we find the wings somewhat lengthened, so as to reach the middle of the tail, which is slightly forked. The food consists entirely of the softer insects, which are either taken on the wing, or sought for beneath leaves and among the foliage of plants and bushes. Many of the species form the most ingenious nests.

In England we are familiar with three closely allied

birds of this genus, the LESSER PETTYCHAPS, (*Sylvia hippolais*,) the WOOD WREN, (*Sylvia sibilatrix*,) and the WILLOW WREN, (*Sylvia trochilus*.) Of these the Willow Wren is the most abundant, frequenting gardens, groves, and orchards, where the simple song of the male may be heard during May and June. The nest is a ball, composed of grasses, moss, leaves, and fibres, with a side aperture for the ingress and egress of the parents. It is concealed on or near the ground, generally on a bank or in a dry ditch side, among tangled herbage, briers, and matted weeds.

The most interesting species, however, is one which is peculiar to the southern provinces of Europe, namely, Portugal, Spain, Italy, Sardinia, and Sicily. It is the FANTAIL WARBLER, (*Sylvia cisticola*, TEM.) The plumage of this interesting little artist is plain and sober, being of a dead leaf colour, or reddish yellow above, each feather being dashed in the middle with blackish brown, so as to present the appearance of a multitude of longitudinal spots, except upon the lower portion of the back, which is plain, as is also the whole of the under surface, which is of a reddish white. The tail is short, graduated, and of a blackish brown, each feather having a deep black spot near the end. The total length of this species is barely four inches. In the construction of its nest, this bird displays a most beautiful example of skill and contrivance. The little domicile is indeed a masterpiece of art; it is placed in a tuft of tall grass, and elevated from the ground. With great neatness, a number of the blades of grass are drawn together and interlaced, or truly sewed, with a kind of cotton thread, the bird's own manufacture; the blades of grass, thus secured, form an exterior case and support, to a long and barrel-shaped nest, open at the top, and consisting of a flocculent cotton-like material, secured by threads to the blades and stalks, which environ it so closely that nothing can be more effectually concealed. The writer has examined this nest again and again, his wonder increasing upon each successive inspection. How the thread is formed, and how the sewing

is accomplished, is indeed a mystery. “The God of nature is the secret guide.”

Professor Savi, of Pisa, has written an interesting little treatise (“Notizia sul nido del *Beccamoschino*,”) on the



THE NEST OF THE FANTAIL WARBLER.

nest of this species. We are able to give a sketch from nature.

“ This bird is common in all the shrubby district about Gibraltar, ever darting with vast alacrity among the bushes; when disturbed it takes long flights, chirping all the way with a remarkably loud and shrill note; at other times it makes no noise whatever. When in motion, it erects the tail and spreads it into a circle, which appears very beautiful; hence the propriety of the name Fantail.” See Latham, vii. 88. We place it provisionally only, with the restricted genus *Sylvia*; it is evidently allied very closely to that of *Salicaria*, with which indeed it is by some authors associated. The nest of the *Sylvia cisticola* naturally brings to mind that of the Tailor Bird of India, where is found a parity of design and construction, though somewhat modified in the details.

The TAILOR BIRD, (*Sylvia sutoria*, IND. ORN. ii. 550.) is a native of Hindostan, Ceylon, and other parts of India. Whether it belongs to this genus or not, is however a point to be still ascertained. It is a minute species,



THE TAILOR BIRD'S NEST.

measuring but three inches and a half long; one of its native names is Kaha Tahitya; its general plumage is pale olive; chin and throat yellow, under parts dusky white;

its weight is about ninety grains. Dwelling in countries where snakes and monkeys are formidable enemies to the feathered race, committing incessant depredations on their nests, this pretty little bird makes a leaf at the extremity of a pendent twig its cradle, rocking to and fro in the breeze. If this leaf be large enough, it draws the edges together, so as to form a pouch, the end of which is drawn up to assist in supporting the nest within; if the leaf be not sufficiently large, another growing by it, or sometimes a dead one, as it is said, is sewed to it, in order to form a convenient receptacle for the nest. This, or as it may be termed the inner nest, is composed of down, intermixed with fibres, and a few feathers. Thus are the young provided with a safe and snug cradle.

The present species, however, appears to be not the only one which fabricates this kind of nest. Dr. Latham informs us, that in Lady Clive's collection of drawings, there is a somewhat similar bird, called *Merops minimus*,



INTERIOR OF TAILOR BIRD'S NEST.

(query, a species of *Cinnyris*) which adopts the same method; and Forbes, in his *Oriental Memoirs*, says, the "Tailor Bird resembles some of the humming birds at the Brazils, in shape and colour; the hen is clothed in brown; but the plumage of the cock displays the varied tints of azure, purple, green and gold, so common in those

American beauties. Often," he adds, "have I watched the progress of an industrious pair of Tailor Birds, from their first choice of a plant, until the completion of the nest, and the enlargement of the young." To this is added a sketch of the female and nest, of which the foregoing is a copy.

Latham notices among the drawings of Sir J. Anstruther, the representation of a nest composed of several leaves like those of the hazel, sewed together, and united to a living leaf on the tree; the inner nest being composed of dry bents, fibres, and hair. The bird itself however is not identified.

The genus *Sylvia* seems to lead us naturally into that termed *Salicaria*, (Selby,) distinguished by the comparative strength of the beak, which is ridged along the upper mandible, and slightly incurved at the tip. The feet are large and strong, and the hind toe is especially developed. The claws are sharp and curved. The wings are short; tail long, and rounded. The birds of this genus frequent waters, concealing themselves among reeds and osiers, which grow in morasses, and along the edge of rivers; their food consists of such insects, and their larvæ, as abound in these localities. They have no well modulated song, their notes being reduced to a sort of chirp, or hurried chattering, which is often kept up for a long time together. Some of the species approach the thrushes in their general form, and seem to lead to that family.

Such for example is the GREAT SEDGE WARBLER, (*Salicaria turdoïdes*,) a bird which is tolerably common on the continent, though never seen in our island; yet, strange to say, it inhabits the marshy grounds near Calais, and is abundant in Holland. Its nest is attached to the stalks of growing reeds, which are admirably interlaced with fibres and grass, so as to form a safe support; the eggs are five in number, greenish, spotted, and dashed with gray and black. The length of this species is eight inches. The plumage is rufous brown above, and dusky white below; a white stripe surmounts the eye.

Like the great sedge warbler, our well known REED WREN, (*Salicaria arundinacea*,) builds the same elegant nest. This little bird is spread over the whole of Europe, wherever marshes, fens, and sluggish waters, abounding in reeds and tall grasses, afford it food and shelter. It is very common in the neighbourhood of London, though not often visible, since it lurks among the thickest recesses of the reed beds, whence it cannot be well driven out; there too, far from the brink of the water, out of reach and out of sight, it builds its nest, and rears its progeny. The eggs are pale greenish, blotched with brown. The plumage of this little bird is of a rufous brown above, with a whitish streak over the eye. Under parts pale reddish white. On page 167 is a sketch from nature of this bird and its elegant nest.

We must not omit the genus *Regulus*, distinguished by a very slender and compressed bill, and containing that smallest of British birds, the GOLDEN CRESTED WREN, (*Regulus vulgaris*, CUV.) as well as several foreign species. This beautiful little creature is spread throughout Europe, as far north as the arctic circle, and remains in the southern districts of our island during the whole of the winter in small flocks, which separate towards spring. Groves, woods, and plantations of fir are its favourite locality. Insects and their larvæ, after which it hunts with great assiduity, constitute its subsistence. On the continent it is abundant in the extensive pine forests of the north, whence it migrates southwards, after the summer is over, unwilling to contend with the severities of winter in those dreary regions. Hence it occasionally happens that the flocks permanently residing in our island have their numbers increased by multitudes of strangers, which (as happened in October, 1822) suddenly make their appearance on the coast, driven out of their usual course by violent stress of weather, the gale blowing from the north-east.

The nest of this diminutive bird is remarkable for its neat and compact structure; it is usually suspended at the extremity of the sweeping branch of a pine or larch; attached to the under side of the foliage, and secured with



THE REED WREN AND NEST.

great art to the twigs, so that it is covered by the leaves, which form a sort of pent-house, protecting it from the



THE GOLDEN CRESTED WREN.

rain. It is built of a thick and well-compacted mass of moss, the webs of spiders, lichens, &c., and lined with downy feathers, and is exquisitely warm and soft. The following is a sketch from nature.



NEST OF THE GOLDEN CRESTED WREN.

The weaving of this substantial nest must have been a work of great labour and assiduity, for, compared to the bulk of the diminutive architects, it is of large dimensions; the circumference being eleven inches, while the bird itself is but three inches and three-quarters in length. The eggs are from seven to ten in number, and of a pale yellowish brown. The general plumage of the Golden Crested Wren is olive green, a flame-coloured patch occupying the top of the head, bordered on each side with a narrow line of black.

Passing from the genus *Regulus*, let us pause a moment at that termed *Troglodytes*, which contains our well-known WREN, (*Troglodytes Europæus*.) Small as this little creature is, it braves our winter, cheering the gloom of the season by its shrill and lively strains. It is a familiar and sprightly bird, frequenting gardens, hedges, and groves near human dwellings, and building its artful nest in any convenient situation. Sometimes it chooses an ivy covered tree, sometimes an old thorn-bush, sometimes a haystack, sometimes a hole in an old wall or building. The nest is a large ball-like mass, with a small aperture in the side, leading into a snug and well-lined chamber; it is composed of various substances, but moss usually enters largely into its structure; the lining is hair, feathers, wool, bits of worsted, down, and similar materials. The eggs are from eight to twelve in number.

Those well-known birds of passage, the WAGTAILS, belong to two genera of the present family; the Pied species being an example of the genus *Motacilla*, (*Motacilla alba*,) while the Yellow Wagtail, so common in spring on our downs and commons, is an example of the genus *Budytes*, (Cuv.)

To these birds is allied the genus *Enicurus*, containing several species peculiar to India; in their general habits, and the celerity of their movements on the ground, where they trip along in chase of insects, they closely resemble our own Wagtails.

The PIPITS, (*Anthus*,) form another genus of the *Sylviadæ*, the province of which is the turf-clad surface of commons and pastures. From their general style of colouring, as well as from the elongation of the hind claw, they have been joined by many ornithologists to the larks. They differ however most essentially from these, in the form of the beak, which is narrow and slender; and in their food, which consists entirely of insects; hence they are migratory, visiting these northern latitudes in spring. They build on the ground, near marshy places, in tufts of grass or rushes, or among loose clods and stones. Many sing sweetly.

Our own MEADOW PIPIT, (*Anthus pratensis*,) which abounds on our commons in spring; and the TREE PIPIT, (*Anthus arboreus*,) which frequents hilly districts covered with dwarf bushes and underwood, are examples that will suffice without a more detailed account. And here may be closed this sketch of the family of *Sylviadæ*; an active busy race, subservient to the interests of man, and adding, by their forms and voices, animation, and a double charm to the scenery of nature. Can that man's heart be well attuned, who, as he wanders abroad in the freshness of spring, with nature blooming around, the flowers offering up their incense, and the woodland choristers their songs of praise, feels no emotion of gratitude or adoration to "Him, the great Master of all?" The birds of the air invite him with their harmony, to speak of His goodness, and show forth His praise.

FAMILY THE FOURTH.—MERULIDÆ, or the Thrushes. The family, Merulidæ, comprehends, besides the true thrushes, the orioles, the ouzels, the ant-thrushes, and many others. The diet is of a mixed character, most living on berries and fruits, together with snails, worms, caterpillars, and insects; some however are more insectivorous than others. In all, the beak is stronger than in the *Sylviadæ*, generally elongated, bent at the tip, and ridged along the top of the upper mandible. Different genera however differ widely, according to modifications

in the nature of their food. More or less terrestrial in their habits, they are all provided with strong elongated tarsi, on which they walk or hop about, under hedges and bushes, over lawns and fields. In summer they dwell in pairs, but in winter, (at least it is the case with the greater number of the European species,) they congregate together in immense flocks, scattering themselves, in search of food, over ploughed lands and pastures. Many, as the fieldfare, the redwing, &c., are birds of passage, breeding in the north, and visiting the more temperate latitudes on the approach of winter. Hence, the early appearance of flocks of fieldfares indicates that the cold has already set in, in the north, and that an early winter may be expected.

The present family has representatives in every part of the world; and contains some of the richest of our birds of song. Of many the colours are glowing and beautiful.

The restricted genus *Turdus* is represented by that delightful songster, the well-known THRUSH, (*Turdus musicus*,) whose full and varied notes poured forth from the highest branch of some tall tree in the grove or the orchard, welcome the earliest dawn of morning, and the calmness of evening. The Blackbird, another melodious songster, though formerly placed among the true Thrushes, belongs to a different genus, namely, *Merula*; but the missel-thrush, the redwing, the fieldfare, &c. belong to the genus *Turdus*, where, though not perhaps strictly, may also be placed that celebrated species, the MOCKING BIRD, of America, (*Orpheus polyglottus*, SWAINS.) which, as the finest vocalist of the feathered choir, demands a more detailed notice. “The plumage of the Mocking Bird, (see the American Ornithology,) though none of the homeliest, has nothing gaudy or brilliant in it; and had he nothing else to recommend him, would scarcely entitle him to notice; but his figure is well proportioned, and even handsome. The ease, elegance, and rapidity of his movements, the animation of his eye and the intelligence he displays in listening, and laying up

lessons from almost every species of the feathered creation within his hearing, are really surprising, and mark the peculiarity of his genus. To these qualities we may add that of a voice, full, strong, and musical, and capable of almost every modulation from the clear mellow tones of the wood-thrush, to the savage scream of the bald eagle. In measure and accent he faithfully follows his originals. In force and sweetness of expression, he greatly improves upon them. In his native groves, mounted on the top of a tall bush, or half grown tree, in the dawn of a dewy morning, while the woods are already vocal with a multitude of warblers, his admirable song rises preeminent over every competitor. The ear can



THE MOCKING BIRD.

listen to his music alone, to which that of all the others seems a mere accompaniment. Neither is this strain altogether imitative. His own native notes, which are

easily distinguishable by such as are well acquainted with those of our own various song birds, are bold and full, and varied seemingly beyond all limits. They consist of short expressions of two, three, or at the most five or six syllables; generally interspersed with imitations, and all of them uttered with great emphasis and rapidity; and continued with undiminished ardour for half an hour or an hour at a time. His expanding wings and tail glistening with white, and the buoyant gaiety of his action arresting the eye, as his song most irresistibly does the ear, he sweeps round with enthusiastic ecstasy; he mounts or descends as his song swells or dies away." "While thus exerting himself, a bystander, destitute of sight, would suppose that the whole feathered tribes had assembled together on a trial of skill; each striving to produce his utmost effect; so perfect are his imitations. He many times deceives the sportsman, and sends him in search of birds that, perhaps, are not within miles of him, but whose notes he exactly imitates. Even birds themselves are frequently imposed on by this admirable mimic, and are decoyed by the fancied calls of their mates; or dive, with precipitation, into the depth of thickets, at the scream of what they suppose to be the sparrow-hawk.

"The Mocking Bird loses little of the power and energy of his song by confinement. In his domesticated state, when he commences his career of song, it is impossible to stand by uninterested. He whistles for the dog; Cesar starts up, wags his tail, and runs to meet his master. He squeaks out like a hurt chicken, and the hen hurries about with hanging wings and bristling feathers, to protect its injured brood. The barking of the dog, the mewling of the cat, the creaking of a passing wheelbarrow, follow with great truth and rapidity. He repeats the tune taught him by his master, though of considerable length, fully and faithfully. He runs over the quiverings of the canary, and the clear whistlings of the Virginia nightingale, or red-bird, with such superior execution and effect, that the mortified songsters feel their own inferiority, and become altogether silent; while he seems to triumph in their defeat by redoubling his exertions."

Audubon states that the Mocking Bird remains in Louisiana the whole year. In the northern states it comes and goes with the seasons. It is widely distributed through the continent of America, having been traced from the states of New England to Brazil, every where preferring districts adjacent to the sea. Its food consists of berries of various kinds, as well as of insects also. This interesting bird builds in thick bushes, and impenetrable thickets; an orange tree, cedar, or holly, or fruit tree in a garden are among the usual retreats; not that the bird is over anxious to conceal his nest from man, but from foes more dreaded—the cat, the hawk, and the snake; no animal can approach the precincts of that guarded spot, without being attacked; and both the cat and the snake are frequently compelled to make a precipitate retreat before the active and intrepid assaults of the spirited pair.

In Louisiana, the Mocking Bird is a general favourite; exempt from the destruction which the sportsman scatters among the feathered race in general, with promiscuous wantonness. The nest is a rude construction of twigs, sticks, straws, and wool, lined with vegetable fibres. The eggs are five in number, of a dull blue, blotched with brown.

The males and females differ little in their plumage. The upper parts are of a dark brownish ash; the wings and tail nearly black, the primary feathers being white at their base, so as to form a large spot of that colour on the wing. The whole of the greater coverts, and the tips of the lesser coverts are white, as is the outer tail-feather; the rest being tipped with that colour. The whole of the under surface is of a pale brownish white. Bill and tarsi black. Length, nine inches and a half.

“The eagerness with which the nest of the Mocking Bird is sought for in the neighbourhood of Philadelphia, has rendered this bird extremely scarce for an extent of several miles round the city. In the country round Wilmington and Newcastle, they are very numerous, from whence they are frequently brought for sale.” The

usual price of a singing bird is from seven to fifteen, and even twenty dollars. “I have known,” says Mr. Audubon, “fifty dollars paid for a remarkably fine singer; and one instance where one hundred dollars were refused for a still more extraordinary one.”

Attempts, showing it not unlikely to succeed, have been made, with a view to the breeding of the Mocking Bird in captivity.

Besides the Mocking Bird, America possesses several species of Thrush, whose notes are only inferior to those of the great leader.

The WOOD THRUSH, (*Turdus mustelinus*, GM.) may be noticed; it visits Pennsylvania in April, arriving from the regions of the north, and takes up its residence in warm dells or hollows clothed with wood, where, mounting on the top of some tall tree, even though the leaves are but just peeping from the bud, and the cold of winter is scarcely passed, it pours out a succession of few but rich and mellow notes: the song consists of five or six parts, the prelude to which, strongly resembles the double-tonguing of a German flute, and sometimes the tinkling of a small bell.

The FERRUGINOUS, or BROWN THRUSH, (*Turdus rufus*, L.) is another melodious songster, whose voice, varied, full, and powerful, resounds through the groves of the United States; “a welcome visitant in spring to every lover of rural scenery and rural song. In the months of April and May, when our woods, hedge-rows, orchards, and cherry trees are one profusion of blossoms, when every object around us conveys the sweet sensation of joy, and Heaven’s abundance, as it were, showering around us, the grateful heart beats in unison with the varying elevated strains of this excellent bird; we listen to its notes with a kind of devotional ecstacy, as a morning hymn to the great and most adorable Creator. The human being who amidst such scenes, and in such seasons of rural serenity and delight, can pass them with cold

indifference and even contempt, I sincerely pity; for abject must that heart be, and callous those feelings, and depraved that taste, which neither the charms of nature, nor the melody of innocence, nor the voice of gratitude or devotion can reach." With these sentiments, so eloquently expressed by the celebrated author of *American Ornithology*, we cordially agree. A deadness and a callous indifference to the beauty, order, and harmony of nature, to the glories of creation, the bounty and providence of God, and his care over all His works, are evidences of a deplorable condition of moral feeling. Such a man sees not God in his works, either of creation or of grace; he looks not upon that God as his Father and his Friend. "A brutish man knoweth not, neither doth a fool understand." There are, on the other hand, many who are keenly alive to the glories of God in creation, and yet know nothing of the glories of God in the great plan of redemption; such are indeed to be pitied; they are blind to their own condition as sinners against God; nay, they make their own imperfect righteousness a ground of merit and acceptance, believing not the declaration, that their "righteousness is as filthy rags:" hence they feel no need of a Redeemer, no need of an atoning sacrifice, no need of the influences of the Holy Spirit. Learned, perhaps, in arts, in science, the Book of Truth is to them a sealed volume; elevated in the pride of intellect, they look down with contempt on the lesson that teaches the way-faring man a path to a glorious kingdom, a heavenly Canaan. Perhaps at last, when arts, and science, and stores of learning are all fading beneath the hand of death; when human wisdom owns itself to be vanity, the agitated mind may then acknowledge, with bitter remorse, the sin and folly of neglecting that book which maketh wise to everlasting life: even then, in the eleventh hour, there is hope; for the Holy Spirit may at that moment take of "the things which are Jesus Christ's," Phil. ii. 21, and show them in all their acceptableness to the soul. But how far, how very far better is it, to give the strength and vigour of our days to Him, who has said, "My son, give me thy heart,"—to become His servants and His subjects. Then

will nature wear a lovelier hue ; then will every object around be doubly interesting ; for we shall regard them as the works of our heavenly Father, and we shall see in them the power, and wisdom, and goodness of our God and our Redeemer. But we must turn from all digression and resume our subject.

To the more typical Thrushes succeed the Ant-Thrushes, (*Myiothera*,) a race of birds strictly terrestrial, with strong elevated tarsi, short rounded wings, and abbreviated tails. Their food consists of insects, especially ants, termites, &c. The genera are numerous ; some exclusively confined to the old world, others to the new. India presents us with the genus *Pitta*, the Brèves of Buffon, so called from the almost total absence of a tail. They stand very high on the limbs, but have feeble powers of flight. Their colours are gaudy, many of the tints being of a metallic lustre. An example will be found in the *Pitta brachiura*, a bird extensively spread through India, and generally agreeing with our own thrush in manners, though more exclusively confined to the ground. The plumage of the back is metallic green ; the shoulders and quills are black, with a bar of white ; the scapulars and tail-coverts are bright lazuline blue ; a black line extends from the beak to the occiput, and down the neck, bordered on each side by olive brown ; the ear-coverts and sides of the neck are black ; the throat is white ; the breast and under surface tawny ; the under tail-coverts scarlet. The species are numerous, and all characterized by a similar style of colouring.

Allied in some respects to the genus *Pitta* is the genus *Cinclus*, of which four species only are known ; one of them being European ; and of the others, two are from India, the remaining one from America. The generic characters consist in the beak being straight, somewhat turned upwards, compressed laterally, and blunt at the tip. The wings are rounded, the tarsi long, the feet large. The birds of this genus belong undoubtedly to the terrestrial group of the present family ; though some

of their habits are peculiar, and not a little remarkable. We allude to the faculty they possess of plunging into the water, and of walking, or at least of progressing on the bed of the stream, which they do in search of aquatic insects and their larvæ, which constitute their food. Hence they live near streams and rivulets, especially such as meander through mountain valleys, pure and transparent, now spreading out, now contracted and rushing along. Their voice is not deficient in simple melody.

The history of one of the species, the WATER OUZEL, (*Cinclus aquaticus*, BECHS.) may not be uninteresting; for although a British bird, still its localities are so limited, that many have had no opportunities of observing it. If, reader, you should visit the glens of Wales, or the dales in Derbyshire, where a mountain-fed trout stream winds like a serpent through a narrow belt of verdure and foliage, bounded by rocks or precipitous hills, now smooth, now bubbling over masses of stones, some of which rise two or three feet above the surface, expect to see this charming and active bird perched on one of those stones in the very middle of the stream, his head depressed, his short tail elevated, and every motion smart and lively. You will know him by his snow-white breast, which contrasts admirably with the deep russet brown of the rest of his plumage. In a minute he will dart beneath the water, and reappear at a considerable distance, settle on an adjacent stone or crag, and pour forth a low but pleasing song. His nest is near, but you may search for it in vain, so artfully is it concealed and adapted to the chosen site. It may be in the fissure of a low jutting crag, overhanging and touching the water, or in the crevice of a large loose stone, half buried in the earth, by the margin, and covered with a mingled profusion of mosses and lichens and stonecrop; it may be between the stones of an ancient and ruinous wall; but wherever it is, it is made of moss and rock weeds, and of a domed form, an aperture being the door; it offers no difference to the eye from the rest of the moss, which fills up every

chink, and spreads about in luxuriant profusion. The eggs are five in number, and of a pure white. How this little bird manages to keep itself submerged, and proceed



THE WATER OUZEL.

in search of larvæ, or the fry of fish, at the bottom of a stream, is yet to be unravelled ; but that it does so, cannot be disputed. It is common in Switzerland, and the

mountain districts of Germany, France, and Italy, but is only an accidental visitor in Holland.

Passing over several genera, such as *Cinclosoma*, a genus confined to India and the adjacent islands, especially New Holland; *Zoothera*, confined also, as far as is yet known, to India; *Myothera*, and many more, requiring patient attention and an accurate and familiar inspection of actual specimens to discriminate, we notice the genus *Oriolus*; a genus comprehending that beautiful European bird, the Golden Oriole, and eight or nine well marked species besides, from Africa and India. The generic characters of the Orioles consist in the increased strength of the beak, beyond that of the more typical thrushes, the shortness of the tarsi, and length of the wings; to which may be added, the universal prevalence of a rich golden yellow, constituting the ground colour of the males; the females being of a dull greenish yellow, inclining to olive. The Orioles live almost exclusively in trees and thickets, and are generally migratory, uniting together in flocks previously to their departure. At other times they reside in pairs, and weave a beautiful pendent nest at the extremity of the branches of tall and leafy trees. Their food consists of insects, different sorts of berries, and other soft fruits. Their flight is rapid and direct, and as they flit along, their golden plumage opened to the sun exhibits their rich colouring to the best advantage.

The only European species, the GOLDEN ORIOLE, (*Oriolus Galbula*,) is common during the summer months in France and Italy, and, indeed, the whole of the southern provinces. In England it is seldom observed, and does not breed with us: indeed, were it so inclined, it would not be permitted; since, whenever observed, (and its colours would at once betray it,) it would be harassed by a host of persecutors, and either shot or driven away. Cherries, and other garden fruits, as well as wild berries, and insects, with their larvæ, constitute its food. Groves, orchards, plantations, and wooded parks are its favourite

resort. It builds a purse-like nest of grasses and fibres, artfully woven together, and suspended from a twig of one of the highest branches of a tree; the eggs are five in number, of a pure white, with a few spots of dark brown. The general plumage of the male, as already remarked, is of a rich golden yellow; a spot intervenes between the eye and beak; and the wings and tail are black, the latter being tipped with yellow. The female, and young of the year, are of an olive green above, and of a pale yellowish gray beneath, with a streak of grayish brown along the shaft of each feather. Tail dark olive.

To the present family Cuvier refers that most remarkable bird, the LYRE BIRD of New Holland, (*Menura*



THE LYRE BIRD

superba,) on the ground of several points of structural approximation, which are very palpable. The form of the toes, and more especially of the beak, (which is triangular at the base, elongated, a little compressed, and notched at the tip) he regards as fully establishing its relationship to the genus *Turdus*. Other eminent naturalists have assigned this bird a place among the *Paradisææ*, or birds of

paradise, and others again have considered it as allied to the curassows, and consequently belonging to the Rasorial Order ; in fact, as being a gallinaceous bird. Where eminent naturalists are thus divided, who shall settle the point ? The views of Cuvier, however, are as plausible as any ; certain it is, that although the Lyre Bird is terrestrial in its habits, and even scratches in the ground, it has not the tarsi, the toes, nor that kind of scale covering these parts, which we find in gallinaceous birds : besides, it is reputed to be a bird of song, which is not the case with any of the rasorial order. How closely it may be found to approximate to some of the less typical thrushes, with soft full plumage and terrestrial habits, remains for future consideration.

New Holland, which affords so rich a harvest to the student of nature, and which produces what are deemed the most singular and anomalous beings, is the native country of this rare and beautiful bird, the habits and manners of which are but little known. One of the earliest notices of it is in Dr. Shaw's Miscellany, where it is characterized as the Parkinsonian Bird of Paradise, (*Paradisea Parkinsoniana*,) having, however, been previously described in the Linnean Transactions, (vol. vi. p. 207, pl. 22,) under the title of *Menura superba*. Mons. Vieillot, who received from Mr. Sydenham Edwards a drawing of the bird, gave it, in his work on the Birds of Paradise, the name of *Paradisea Parkinsoniana*, in honour of J. Parkinson, Esq. of the Leverian Museum, through whose means he obtained the drawing ; but the original title, as given in the Linnean Transactions, is that which is now received. Dr. Shaw, in his account of the manners of the Superb Menura, or Lyre Bird, says, " At the early part of the morning it begins to sing, having a very fine natural note ; and gradually ascending some rocky eminence, scratches up the ground in the manner of some of the pheasant tribe, elevating its tail, and at intervals imitating the notes of every bird within hearing ; and after having continued this exercise for about two hours, again descends into the valleys or lower grounds." This account has been confirmed to the writer

by the testimony of a gentleman who, during his residence in New Holland, took particular pains to investigate its manners and habits: he describes the *Menura* as being very shy and recluse, and consequently not easy to be observed. Its own notes are rich and melodious, and it imitates those of other birds with admirable tact and execution. Dr. Latham informs us, that the *Menura* is “chiefly found in the hilly parts of the country, and is called by the settlers the ‘Mountain Pheasant.’” As to its general manners, very little has come to our knowledge. It will occasionally perch on trees, but for the most part is found on the ground, having the manners of our poultry, as is manifest from observing the ends of the claws, which, in most specimens, are much blunted. Like many other desiderata to the naturalist from New Holland, this curious bird has never been brought alive to Europe.

In size, the *Menura* is nearly equal to a pheasant. Its general plumage is of a dull brown, inclining to rufous on the quill-feathers; the tail, which is much longer than the body, consists, in the male, of feathers so arranged, and of such different sorts, as to form, when elevated, a figure bearing no unapt resemblance to an ancient lyre; the character of these feathers will be better conveyed by the accompanying sketch than by description. The bill is compressed, the nostrils forming a longitudinal slit, covered with feathers; the legs are strong, the toes completely divided, and armed with powerful blunted nails, those of the hind claw being especially developed. A good specimen of this bird, whose elegant style of plumage and melodious voice justify its title “Lyre Bird,” is to be seen in the Museum of the Zoological Society.

Here, then, we close our sketch of the family of *Merulidæ*, allied to the *Sylviadæ* by several links of connexion, and by one especially, the genus *Petrocincla*, (Vigors,) an Indian, form between the rock-thrushes on the one hand and the genus *Phænicurus* on the other. On this point, however, the reader is referred to the Proceedings of the Zoological Society, Parts I. and II. and Gould’s Century of Himalayan Birds.

The fifth and last family of the Dentirostral tribe of the order Incessores next claims attention.

THE FIFTH FAMILY.—PIPRIDÆ, or the MANAKINS. —The Manakins form a most extensive family, represented in Europe by the Bohemian Waxwing, or Chatterer, (*Bombycivora*,) and those familiar birds the Titmice, (*Parus*,) in India by the genus *Calyptomena*, in New Holland by the Spotted Manakin, (*Pardalotus*,) and in America by the Rock Manakin, (*Rupicola*,) the Cotingas, (*Ampelis*,) the Swallow-chatterers (*Procnias*,) the Fork-tailed Manakins (*Phibalura*,) and many more. The beak varies in stoutness, and is more or less depressed, with a ridge along the top of the upper mandible; the food varies, many being true berry feeders, others living on insects as well as fruits.

Passing by the Titmice, (genus *Parus*,) whose habits and manners are well known, and whose artful nests are so remarkable for comfort and ingenuity, we stop at the genus *Bombycivora*, which contains only three species, one of which is that elegant bird the BOHEMIAN WAXWING, or Waxen Chatterer, (*Bombycivora garrula*, TEMM.) The natural habitat of this interesting bird, where it breeds and rears its young, is the regions within the arctic circle; whence it migrates southwards during winter, making late and irregular excursions, actuated no doubt as to the extent of its journey by the degree of cold and facilities of procuring food. Hence in middle and temperate Europe it is a rare species, and in England a winter may pass without the appearance of a single bird, while during the next, several small flocks may be seen in the northern counties, especially where the mountain ash abounds, upon the berries of which it feeds. Of its habits and manners little or nothing is known, but it is said, perhaps erroneously, to build its nest in the clefts of rocks.

The general plumage is of a dull vinous ash, tinted with ferruginous red on the forehead and cheeks; the feathers of the head prolonged into a beautiful crest; the throat, the feathers of the nostrils, and a band which passes from the beak through the eye, black; primary

quill-feathers brownish black, each feather having a yellow line or broad streak on its inner margin, near the tip. The secondaries tipped with white, each having the shaft prolonged, and curiously furnished with small, hard, scarlet appendages, like little oval beads of red sealing wax, whence its name. Tail black, tipped with a yellow band. Beak and tarsi black. Length seven inches.

A closely allied but smaller species, the CEDAR BIRD, (*Bombycivora Carolinensis*,) peculiar to America, is stated by Wilson to be extensively diffused, from the highest latitudes as far south as Mexico. He says, "They fly in compact bodies of from twenty to fifty, and usually alight so close together, on the same tree, that one half are frequently shot down at a time. In the months of July and August they collect together in flocks, and retire to the hilly parts of the state, the Blue Mountains, and other collateral ridges of the Alleghany, to enjoy the fruit of the *Vaccinium uliginosum*, whortleberries, which grow there in great abundance; whole mountains, for many miles, being almost entirely covered with them, and where, in the month of August, I have myself found the Cedar Birds numerous. In October, they descend to the lower cultivated parts of the country, to feed on the berries of the sour gum and red cedar, of which last they are immoderately fond; and thirty or forty may sometimes be seen fluttering among the branches of one small tree, plucking off the berries." "In June, while cherries and strawberries abound, they become extremely fat; and about the tenth or twelfth of that month, disperse over the country in pairs to breed; sometimes fixing on the cedar, but generally choosing the orchard for that purpose. The nest is large for the size of the bird, fixed in the forked or horizontal branch of an apple-tree, ten or twelve feet from the ground." Externally it is composed of coarse grass, and lined with materials of a finer texture. The eggs are four, of a purplish white, marked with black spots. Audubon observes that these birds are "excellent flycatchers, spending much of their time in the pursuit of winged insects," but yet

without much vivacity or energy of action. “ They start from the branches and give chase to the insects, ascending after them for a few yards, or move horizontally toward them, perhaps rather farther than when ascending, and as soon as the prey is secured return to the spot, where they continue watching, with slow motions of the head. Towards evening this amusement is carried on for half an hour or an hour at a time, and is continued longer at the approach of autumn, the berries then becoming scarcer.” “ Very few of these birds remain the whole winter in the middle states.”

The ROCK MANAKIN, (*Rupicola crocea*,) one of the most elegant birds of the present family, and the type of the genus *Rupicola*, is a native of South America, inhabiting the rocky and mountain districts along the rivers of Surinam, Cayenne, and Guiana. Most probably it is to be found along the whole range of the river Amazon, and its tributary branches. Latham states, “ that it is nowhere so frequent as in the mountain Luca, near the river Oyapoc, and in the mountain Courouaye, near the river Arouaek, where it builds in the cavernous hollows and dark recesses: the nest is composed merely of a few dry sticks, and the eggs are two in number, of the size of those of a pigeon, and equally white.” The Rock Manakin is a shy and solitary bird, giving preference to silent and secluded glens and rocky ravines, where it appears to pass an undisturbed existence. Waterton informs us, that it is a native of the woody mountains of Macoushia, a tract on the Apoura-poura, a tributary river falling into the Essequibo from the south, inhabited by the Macoushi Indians, so celebrated for their skill in preparing the deadly vegetable poison wourali, with which they smear the points of their arrows. “ In the daytime it retires amongst the darkest rocks, and only comes out to feed a little before sunrise and at sunset: it is of a gloomy disposition, and never associates with the other birds of the forest.”

The Rock Manakin is about the size of a small pigeon; the general colour of the plumage is rich saffron yellow,

with a tinge of orange; the head is ornamented with a beautiful crest, flattened at the sides, and rising like a fan.



THE ROCK MANAKIN.

The secondaries and tail-coverts are square, as if cut at the ends, and the wing-coverts are elongated into loose flowing plumes. The tail is brown, tipped with yellow. The female is not so fully ornamented with crest and plumes as the male, and her colour is of an uniform brown. We are aware of no instance of a living specimen being brought to Europe.

From the country bordering the River Amazon is brought another bird equally curious and beautiful, but very rare in museums, the UMBRELLA BIRD, (*Cephalopterus ornatus*, GEOFF.) so called from the full out-

spreading plumes which tower above its head, like the horsetail crest of a Grecian helmet. Of its manners and habits nothing is known. In size it is about as large as a jay; from the upper part of the chest depends a sort of apron, or screen, of square-edged feathers, which is very graceful; the tail is graduated. The whole of the plumage is jet black, with rich violet reflexions, especially on the



THE UMBRELLA BIRD.

crest and the chest plumes. The above figure is taken from a superb specimen in the Museum of Paris.

Among the most brilliant in the rich hues of their plumage the present family has none to equal the various species of Cotingas, forming the restricted genus *Ampe-lis*. Insects and soft fruits form their diet, and the dense damp woods of South America their abode. The metallic

tints of blue and purple which adorn many of the species are, however, peculiar to the males alone, and are said to disappear after the breeding season ; both sexes being then clothed in a quiet sombre livery of gray or brown. A few examples may be described.

The SCARLET COTINGA (*Ampelis carnifex*, LIN.) “is found in the deepest recesses of the forest: his crown is flaming red; to this abruptly succeeds a dark shining brown, reaching half way down the back; the remainder of the back, the rump, and tail, the extremity of which is edged with black, are of a lively red; the breast reddish black; the wings brown. He has no song; is solitary, and utters a monotonous whistle, which sounds like ‘*Quet.*’ He is fond of the seeds of the hitea tree and those of the siloabali, which ripen in December, and continue on the trees for above two months. He is found throughout the year in Demerara; still nothing is known of his incubation. The Indians all agree in telling you they have never seen his nest.”—WATERTON.

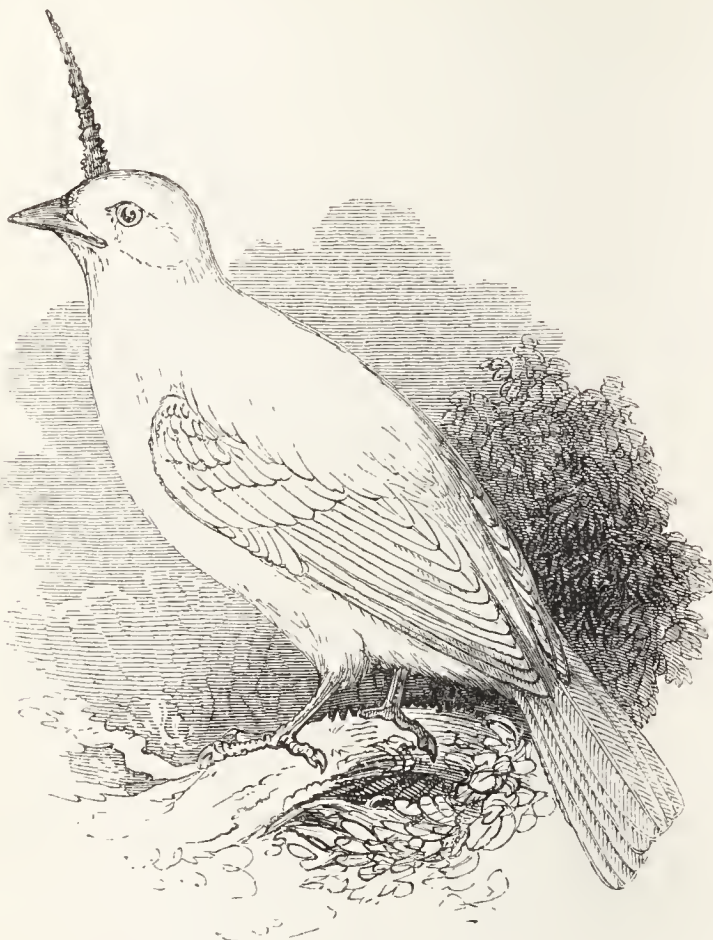
The PURPLE-BREASTED AZURE COTINGA (*Ampelis cotinga*) has the throat and breast violet or deep purple, the wings and tail black, and all the rest of the body of the loveliest ultra-marine blue which can be imagined.

The POMPADOUR COTINGA (*Ampelis pompadora*) is of a universal light purple, inclining to red, with the exception of the quill-feathers, which are white. The great coverts of the wings have stiff shafts, and are narrow and pointed, and overlay each other like the pointed tiles of a roof. The voice of this bird is hoarse, and sounds like his Indian name, “Wallababba.”

With the exception of the first species mentioned, Mr. Waterton observes that, in December, January, and part of February, they are common in the woods of Demerara, feeding on the seeds of various wild fruit trees; but that the greater part disappear in February, or soon after, “and probably retire far away to breed. Their nests have never been found in Demerara.”

Closely allied in form to the genus *Ampelis* is that of

Procnias, Hoffman. It contains that remarkable bird the CAMPANERO, or Bell-bird of South America, whose voice, tolling through the wilds like a bell, startles the astonished traveller, reminding him of other scenes, and calling forth associations and crowded thoughts of days gone by.



THE CAMPANERO.

The Campanero, says Waterton, “is about the size of the jay; his plumage is white as snow. On his forehead rises a spiral tube nearly three inches long; it is jet black, dotted all over with white feathers: it has a communication with the palate, and when filled with air looks like a spire; when empty, it becomes pendulous. His note is loud and clear, like the sound of a bell, and may be heard at the distance of three miles. In the midst of these extensive wilds, generally on the dried top of an aged mora, almost out of gun-reach, you will see the

Campanero. No sound or song from any of the winged inhabitants of the forest, not even the clearly pronounced ‘Whip-poor-will,’ from the goatsucker, cause such astonishment as the toll of the Campanero. With many of the feathered race, he pays the common tribute of a morning and an evening song; and even when the meridian sun has shut in silence the mouths of almost the whole of animated nature, the Campanero still cheers the forest. You hear his toll; and then a pause for a minute; then another toll, and then a pause again; and then a toll, and again a pause. Then he is silent for six or eight minutes; and then another toll, and so on.” The most anxious travellers cannot refuse to pause and listen to him, so sweet, so novel, and romantic is the toll of the pretty snow-white Campanero. Of his nest we know nothing.

The true Manakins, forming the restricted genus *Pipra*, are very numerous, small, and prettily coloured. They are mostly natives of South America, and frequent humid forests, where they associate in small flocks, feeding on seeds and wild berries. Waterton describes four species he met with in Demerara, but without giving any names, observing that on a species of fig tree, which bears fruit twice a year, a half red and half black species (most probably the *Pipra rubra*) is on the tree, during the time of the fruit being ripe, from morning till evening.

One of the most beautiful is the PURPLE MANAKIN, (*Pipra cristata*,) a native of Mexico and Brazil. M. Fermin’s description is, “that the bird has a golden orange crest; the rest of the body violet, like an amethyst.” In size it is less than a sparrow. It appears to be extremely rare.

Latham enumerates upwards of forty species of Manakins, but his details are little else than specific descriptions of colour, size, and locality. In fact we know nothing of the minutiae of the habits and manners of these charming little birds. In all probability, however, they have much resemblance in those respects to our titmice, being restless and inquisitive, flitting from spray to spray, ex-

amining every bud with prying curiosity, suspending themselves in all sorts of positions among the twigs and branches, and then with short and hurried flight passing to another tree which holds out a promise of satisfying their appetite.

Here may be closed the family *Pipridæ*, and with it the Denti-rostral tribe; not, we trust, without having afforded a certain degree of instruction, and awakened a still greater degree of interest. The works of God have only to be studied in order to become most attractive, and, if rightly studied, most productive of beneficial effects upon the mind, enlarging our conceptions of His power, His glory, and His omnipresence.

TRIBE III. CONIROSTRES.

THE Conirostral tribe embraces those birds which are distinguished by a beak of considerable strength, and, as the title indicates, a more or less conical form. We may add to this, that the more decidedly conical the configuration of this organ, the more exclusively do hard seeds and grains constitute the diet of the bird in its adult condition. We may cite the common sparrow as an example, a bird which lives upon barley, oats, peas, and farinaceous vegetable matter in general; still in this, as in most cases, the unfledged young are fed to a great extent upon caterpillars and insects, as well as upon grain softened in the crop of the parents. Where, on the other hand, the beak is more elongated, and though strong and powerful, less abruptly and truly conical, as in the crow, raven, &c., the food consists more of animal matters, such as insects, carrion, eggs, and even feeble animals, grain and farinaceous vegetables being not altogether excluded.

FAMILY THE FIRST.—FRINGILLIDÆ, or the Finches. The Finches, or Fringillidæ, compose an immense multitude of small birds, which, like the soft-billed warblers, (*Sylviadæ*,) tenant the groves and hedgerows, many joining their clear strains to the chorus of the wilds and woodlands. Hence are they sometimes called, by way of

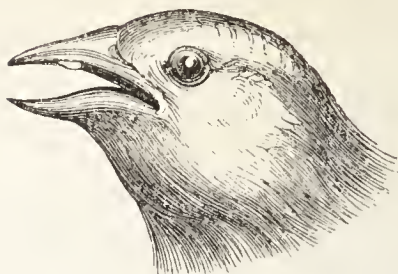
contradistinction, the Hard-billed Warblers. There is, however, this difference between the music of these two bands: the notes of the Sylviadæ are soft, mellow, and often deep; whereas those of the Fringillidæ are loud, clear, and often shrill.

Few or none of our native Finches are migratory, though in winter we are visited by strangers from higher latitudes, which, as the siskin, seek in small flocks a temporary asylum from the rigour of the frozen north, returning homewards with the first promise of spring. In a family so extensive as the present the genera are very numerous, and are often regulated by *minutiæ of form*, which, to the professed naturalist alone, are of interest or importance; we shall therefore take the liberty of exercising a discretionary selection of such examples as will lead our young reader to a *general conception* of the subject.

We may begin by stating that the present family contains the Larks, Buntings, Linnets, Weaver Birds, Finches and Sparrows, Tanagers, Grosbeaks, Crossbills, &c.; which we shall take in the order as written, presenting our readers with a sketch of the forms of the beak of each of our sections.



HEAD AND FOOT OF A LARK.



BUNTING.



LINNET.



WEAVER BIRD.



SPARROWS AND FINCHES.



TANAGER.



GROSBEAKS.



CROSSBILL.

The Larks (*Alauda*, LIN.) are characterized by a conical bill, moderately stout and pointed, and by the remarkable elongation of the nail or claw of the hind toe, which, by giving a greater span to the foot, affords more effectually the means of tripping over the short grass of

pastures and turf-clad fields. Of terrestrial habits, a few species being excepted, which (as the Tree Lark, *Alauda arboræa*) are equally at home in trees or on the ground, the Larks build their nests and seek their food on the ground: this consists of grains, the seeds of plants, the green leaves of vegetables, and insects. They are spread throughout every quarter of the globe. India produces several species, one of which, the *Alauda gulgula*, has the habits and notes of the Skylark of Europe. It is the common Lark of India, and when confined in a cage, and shrouded from the light, it learns to imitate the notes of other birds, and even quadrupeds. “The male is crested. It is called *Chundoola* in Dukhun.” Its food consists of grasshoppers.

The SHORE LARK, (*Alauda alpestris*,) a very beautiful species, is common to the high latitudes of Europe and America. Wilson, in his American Ornithology, observes, “It is one of our winter birds of passage, arriving from the north in the fall, usually staying with us the whole winter, frequenting sandy plains and open downs, and is numerous in the southern states, as far as Georgia, during that season. They fly high in loose scattered flocks, and at these times have a single cry, almost exactly like the Skylark of Britain. They are very numerous in many tracts of New Jersey, and are frequently brought to the Philadelphia market. They are then generally very fat, and are considered excellent eating. Their food seems to consist of small round compressed black seeds, buck-wheat, oats, &c. with a large proportion of gravel. On the flat commons within the boundaries of Philadelphia flocks of them are regularly seen during the whole winter. In the stomach of these I have found in numerous instances quantities of the eggs or larvæ of certain insects mixed with a kind of slimy earth. About the middle of March they generally disappear on their rout to the north. Forster informs us that they visit the environs of Albany Fort in the beginning of May, but go farther north to breed, and that they feed on grass-seeds and buds of the sprig-birch, and run

into small holes, keeping close to the ground. This same species appears also to be found in Poland, Russia, and Siberia, in winter; from whence they also retire farther north on the approach of spring, except in the north-east parts and near the high mountains.”

This elegant bird has been known to visit our own island, but is very rare. The general colour of the back and wings is vinous ash; the forehead, cheeks, and throat are delicate yellow, the former being bounded by a band of black, which terminates at the sides of the head in a long, narrow, pointed tuft of feathers forming an egret capable of being raised up or depressed at pleasure: hence, says Wilson, the term “Horned Lark” would form a very suitable appellation. The breast is ornamented with a deep gorget of black; under parts whitish; plumage of female much more dull and obscure; size of common Sky Lark.

Of all the Larks, however, none is more interesting than that minstrel of the blue heavens, our own SKY LARK (*Alda arvensis*.)

Invisible in flecked sky
The Lark sent down his minstrelsy.
SCOTT.

This charming songster is one of the most common birds of Europe: in winter it congregates in immense flocks, which spread over the cultivated plains, the ploughed lands, and the turnip-fields, in search of food. These flocks are most probably augmented by visitors from the higher northern latitudes, driven by the inhospitable season from plains deeply covered with snow to seek a temporary refuge in a milder climate. Multitudes, however, suffer for their change of locality: man, forgetful or careless of the pleasure which their melody affords in summer, contrives the most efficient means of carrying on a wholesale system of slaughter amongst them, and thousands are annually sent to the London markets, their flesh being accounted more exquisite than their song. In Holland they are taken in nets, and constitute no trifling

article of commerce, cargoes being sent to the ports of England and of other countries.

While the winter lasts the Lark is silent, or, at least, has only a single cry totally unlike its voice of song. With the earliest dawning of spring, ere the snowdrop, “first pale promise of the year,” peeps above the ground, the congregated myriads have as it were dissolved like the snow; many have returned northwards, and those that remain have dispersed themselves, singly or in pairs, over the face of the country. And now returns the voice of melody; while his mate is brooding on her nest, built among the springing corn, see the Lark rise on quivering wings, and mount into the sunny regions of the air, pouring forth as he soars a strain unequalled for brilliancy and variety, and falling clear and distinct on the listener’s ear even when the bird is like a speck in the sky. Presently he descends, still trilling out his song, and gradually sinking on wings quivering with transport and pleasure. He is returning to his mate, for whose sake that song was uttered, and whom he has seen even while at his highest pitch. Having gradually descended to within twenty or thirty yards of the ground, the notes of his lay cease, and, changing his mode of flight in a moment, he sweeps obliquely to his home.

To us the notes of the Lark are most cheering and exhilarating, not indeed when feebly uttered by a poor fluttering prisoner longing for the freedom of the boundless air, but when poured forth, loud and clear, in all the unrestriction of nature and the exuberance of delight: they call up by association a thousand mingled images; they speak of spring; they speak of reviving nature, of “incense breathing morn,” of happiness and liberty; nor less of Him “who rules the varied year.” Well did Milton exclaim—

“Join voices, all ye living souls; ye birds,
That *singing* up to *heaven’s gate ascend*,
Bear on your wings, and in your notes His praise.”

From the Larks we pass to the Buntings, distinguished by a short, straight, conical beak, the upper mandible

(see sketch on p. 194) having an angular bend at its edge, into which is fitted a projecting angle of the lower mandible. There is also, on the palate of the upper mandible, a hard tubercle or knob. One genus of the Buntings, namely, *Plectrophanes*, approaches the larks in the elongated form of the hind claw, as well as in terrestrial habits.

Of this genus, the most familiar and interesting example is the SNOW BUNTING, (*Plectrophanes nivalis*, MEYER.) This hardy little bird is a native of the polar regions of both continents, whence it migrates southwards as far as the fortieth or fiftieth parallel of latitude, but seldom much lower. Pennant thus writes concerning it:—"These birds inhabit not only Greenland, but even the dreadful climate of Spitzbergen, where vegetation is nearly extinct, and scarcely any but cryptogamous plants (mosses, lichens, &c.) are found. It therefore excites wonder, how birds, which are graminivorous in every other than those frost-bound regions, subsist; yet are they found in great flocks, both on the land and ice of Spitzbergen. They annually pass to this country by way of Norway; for, in the spring, flocks innumerable appear, especially on the Norwegian isles, which continue only three weeks, and then at once disappear. As they do not breed in Hudson's Bay, it is certain that many retreat to this last of lands, and totally uninhabited, there to perform in full security the task of incubation. That they breed in Spitzbergen is very probable; and we are assured that they do so in Greenland. They arrive there in April, and make their nests in the fissures of the rocks on the mountains, in May. The outside of their nest is grass; the middle, feathers; and the lining, the down of the arctic fox. They lay five eggs, spotted with brown; they sing finely near their nest."—"They seem to make the countries within the whole arctic circle their summer residence, from whence they overflow the more southern countries in amazing multitudes at the setting-in of winter in the frigid zone. In the winter of 1778-9 they came in such multitudes into Birsa, one of the Orkney islands, as to cover the whole barony; yet, of all the numbers,

hardly two agreed in colours. Lapland, and perhaps Iceland, furnishes the north of Britain with the swarms that frequent those parts during winter, as low as the Cheviot hills, in latitude $52^{\circ} 32'$. Their resting-places are the Feroe isles, Shetland, and the Orkneys. The Highlands of Scotland, in particular, abound with them. Their flights are immense, and they mingle so closely together, in the form of a ball, that the fowlers make great havoc among them. They arrive lean, soon become fat, and are delicious food." We learn from Wilson that, according to his personal observations, the seeds of aquatic plants form a considerable part of the diet of the Snow Bunting, "which (he adds) may be one reason for its preferring those remote northern countries so generally intersected with streams, ponds, lakes, and shallow arms of the sea, that probably abound with such plants." The summer dress of this bird is tawny brown, with a dash of black on each feather of the back. The shoulders are white. In winter the brown more or less completely disappears, its place being assumed by white; but not regularly, for some birds have less white than others, while some are completely white; but no two are found exactly similar.

Of the true Buntings, we may cite as examples the Common Bunting, (*Emberiza miliaria*, LIN.) the Yellow Hammer, (*Emberiza citrinella*, LIN.) the Ortolan, (*Emberiza hortulana*) so celebrated as a luxury on the continent, and the REED BUNTING, (*Emberiza schæniclus*, LIN.)

This pretty though by no means uncommon bird, the Reed Bunting, frequents the sides of streams and marshes or sheets of water abounding in rushes, reeds, and sedges, on the seeds of which it lives, as well as on those of other aquatic plants, and on insects. In our island it appears to remain during the whole of the year, but on the continent, where it is universally spread, and nowhere so abundantly as in Holland, it seems to be in some degree migratory. At least, according to Dr. Latham, numbers are seen in Lorraine, on their passage to other parts, in the months of spring and autumn. As it respects the

nidification of the Reed Bunting, or Black-headed Bunting, as it is often called, some degree of confusion appears to prevail, many naturalists having asserted that it builds a nest supported by the stems of reeds or tall sedges,



THE REED BUNTING AND ITS NEST.

secured together by bents or rushes ; others, on the contrary, affirming that such nests must have belonged to the sedge warbler, and therefore have been erroneously attributed to the Reed Bunting. Selby remarks that its nest is “ generally built in a low bush or tuft of grass, and not suspended between the stems of reeds just above the surface of the water,” as is the case with the nest of the sedge warbler. The author of the “ Architecture of Birds ” says, he never observed it built in either situation, (that is, suspended, or among tufts of grass,) but “ uniformly in the side of a low bank, so that a bit of turf or a stone might project over it.” We suspect the fact to be,

that the bird builds in various situations, according to circumstances; generally, perhaps, among tufts of grass, rushes, or low bushes, but sometimes between sedges or reeds: a nest of this kind the writer once found, with half-fledged young in it, between the sedges of a marshy spot, in Cheshire, elevated at a little distance above the water, or rather ooze. The parent birds repeatedly went to and returned from the nest, and it was by this that it was discovered. A nest situated somewhat similarly to this is described by Bolton; externally it was bound round with the growing reed leaves, so as to form a slight lattice-work, upon which the foundation of the nest was laid. Broken rushes formed the chief material, here and there intermingled with a little moss; the lining was a thick bed of cow's hair: it was placed above the water of a still pond. An accurate naturalist, Graves, speaking of the nest of this bird, says he has himself more than once seen the hen sitting on the nest, when, at every blast of wind, the reeds to which it was suspended were bent down to the water. In allusion to this description is the nest figured in our sketch.

Closely allied to the genus *Emberiza*, is an American genus, (*Ammodromus*, SAV.) containing several species remarkable for their alertness and activity both on the ground, and among the tall grass and herbage of salt marshes and creeks. The Sharp-billed Bunting, (*Ammodromus caudacutus*,) and the Seaside Bunting, (*A. maritimus*,) are examples. Both are found in the United States.

The next section contains the Linnets, of which the Goldfinch, the Redpole, the Linnet, the Siskin, the Canary Bird, are familiar examples. The beak may be characterized as exactly conical and pointed, but varying in length. In habits and manners the birds of this section are active and lively, many having an agreeable song; orchards, furze-covered heaths, and coppices are their favourite abodes; their food consists chiefly of the seeds of various plants, as of the hemp, rape, thistle, groundsel, &c. together with green herbs.

Leaving the examples above indicated, one is selected from Africa, on account of its beauty and scarceness, the WHIDAH BIRD, or WIDOW BIRD, (*Vidua paradisæa*, CUV.) The author of the “Gardens and Menagerie delineated” informs us that “Edwards, the first modern writer by whom this interesting bird was figured and described, having happened to say that the Portuguese called it the *Widow* from its colour and long train, Brisson took the hint, and gave it the name of *Veuve* in French, *Vidua* in Latin. This appellation, translated as the language may be, is now the popular designation of the bird wherever it is known. The French naturalist had, however, overlooked the fact that Edwards had himself corrected his mistake, for such it was, in the following terms. ‘In my description of this bird, I have said that it is called the Widow by the Portuguese; but I am since better informed that it is called the Whidah Bird, because it is brought frequently to Lisbon from the kingdom of Whidah, on the coast of Africa.’ The name thus accidentally given has now, however, been universally adopted both in popular and scientific language. In the latter, the generic term of *Vidua* is applied by Cuvier to a well marked little group among the finches, (*Frin-gillidæ*,) nearly related to the linnets of our own climate.” The genus *Vidua* is indeed one which our present section comprises; its generic characteristic consisting in the singular but elegant elongation of the tail-feathers of the male, at least during the breeding season; together with a slight departure in the beak from the truly conical outline.

Of Cuvier’s genus, *Vidua*, thus established, the Whidah Bird, (*Vidua paradisæa*,) is one of the most elegant species. In organization and in manners they are true linnets. “In captivity, which they endure without much appearance of constraint, they are lively and active, jumping from perch to perch, and alternately raising and depressing their long tails with much vivacity. They are usually fed upon grain, with the occasional addition of green herbs; and are fond of bathing in the water which is placed in their cage. Twice a year they are subject to changes of plumage, which alter the appearance, of the male especially, to such an extent, that it



THE WUIDAH BIRD.

would be difficult to recognise in him the same bird. The long feathers, which are his peculiar attribute, fall off towards the end of autumn, and, with the other changes that take place in his plumage, leave him little to distinguish him, during the winter months, from his plainer mate. But in spring he recovers his long feathers, his more brilliant hues, and his sharp but agreeable and varied note; the change being usually completed by the beginning of June. It is said that they live for twelve or fifteen years." The colour of the male, during summer, when his tail-feathers are in perfection, is of a bright black, with the exception of a band round the neck, and the under surface, which are tinted with chestnut inclining to orange, fading into dull white as it proceeds. The tail is as usual composed of twelve feathers, of which the four middle are elongated; two being flowing and pendent, and two (the two middle) broad, with the shaft projecting like a slender filament several inches beyond the end. During the winter, when these tail-plumes are wanting, the plumage is generally duller, the back and chest being dull orange interspersed with dusky spots; the wings brownish black; the under parts dusky white. Such is also the constant plumage of the females till the third year, when they become dusky brown. The present bird, with several allied species, is a native of the western coast of Africa, from Senegal to Angola.

Leaving the Linnets, the WEAVER BIRDS (*Ploceus*,* Cuv.) next present themselves. They are distinguished by a beak conical like that of the linnets, but much more elongated, and with a very slight arching of the upper mandible. One of the most remarkable circumstances connected with the history of these birds is the formation of most elaborate nests, consisting of grasses or vegetable fibres beautifully interwoven together; in some cases suspended at the extremity of a twig or leaf; in others, where multitudes of birds form a sort of community, compacted together so as to form a solid mass, beneath the weight of which the tree often at length gives way. In the construction of woven nests the species of the

* Πλοκευς, a weaver.

genus *Ploceus* are by no means alone; we have seen that the golden oriole forms a pendent nest, and it is the case with many of the American starlings, (*Icterus*,) often, though erroneously, called orioles, a term belonging to a group peculiar to the old world, and of a different tribe and family.

The subjects of the genus *Ploceus* have been rescued from various ill assigned situations in the systems of earlier writers, some having been placed with the grosbeaks, (*Loxia*,) others with the orioles, (*Oriolus*;) hence the reader must be warned not to be surprised at the names of Philippine Grosbeak, the Pensile Grosbeak, and the Weaver Oriole, which, as the English names most familiar to our ears, are usually retained.

The Philippine Grosbeak, or rather Weaver Bird, (*Ploceus Philippensis*, Cuv.) is one of the best known of the genus; its general colour is dull yellow blotched with brown, the throat being black. It suspends a skillfully woven nest, in the shape of an inverted flask, the entrance being at the extremity of a prolonged neck, through which is the passage to a snug little chamber in the round body of the nest itself. In page 94, P. II. of the Proceedings of the Zoological Society, is the following remark. "*Ploceus Philippensis*.—The Weaver Bird is very common in Dukhun, and there are few wells overhung by a tree where their nests are not seen pendent. They live in small communities, and are very noisy in their labours. They associate so readily with the common sparrow, that, at the season of the grass seeds, Colonel Sykes, in firing into a flock of sparrows on the grass plats in his own grounds, killed as many Weaver Birds as sparrows."

Their food consists almost entirely of the seeds of plants, especially grasses, to which is added the fruit of the *ficus Indica*.

The following sketch is taken from the nest of an African species of this genus; it is fixed to the long slender leaves of some kind of palm, and is remarkable for its beauty and firmness; the structure consists of the long tough stalks of one of the grasses, interwoven with admirable

precision and nicety, a circumstance the more wonderful, considering the difficulties attending every stage of the work, from the twining of the first fibre round the leaf, to the completion of the depending passage. Though not capable of positively identifying the species to which this nest belongs, it seems, by comparison and a careful investigation, to belong to the *Nelicourvi*, or PENSILE GROSBEEK, (*Ploceus pensilis*.) This bird is gregarious, numbers uniting to form a colony, whose pendent nests,



THE WEAVER BIRD AND ITS NEST.

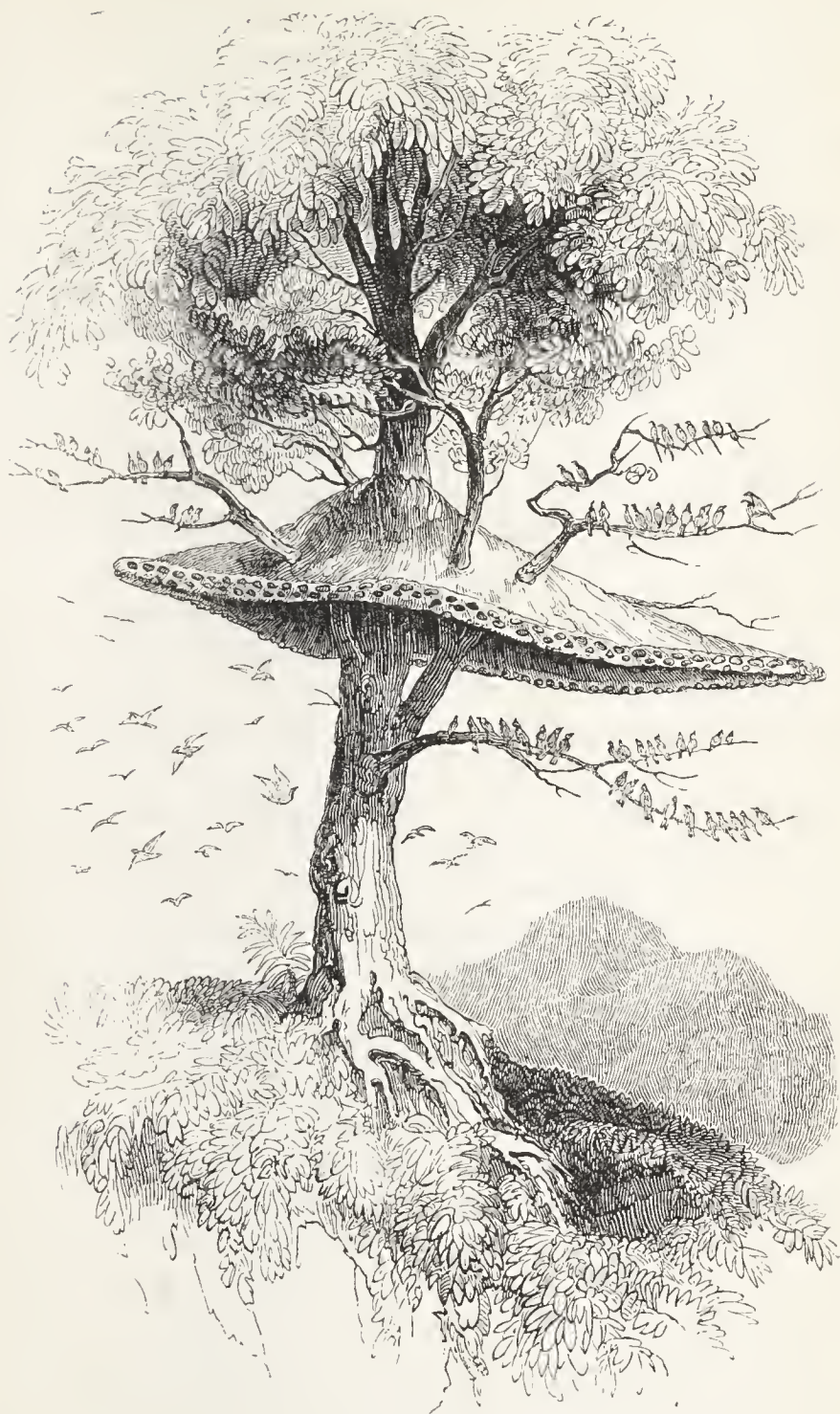
often to the amount of several hundreds, all upon a single tree, bespeak a busy population. The favourite situation is by the bank of a river, or precipice, over which the tree impends ; here they dwell year after year, rearing their progeny, secure from their wily foes, the monkey and the snake.

Forbes describes another interesting species under the

name of Baya, or Bottle-nested Sparrow, which, he says, “is remarkable for its pendent nest, brilliant plumage, and uncommon sagacity. These birds are found in most parts of Hindostan; in shape they resemble the sparrow, as also in the brown feathers of the back and wings; the head and breast are of a bright yellow, and, in the rays of a tropical sun, have a splendid appearance when flying by thousands in the same grove. They make a chirping noise, but have no song; they associate in large communities, and cover extensive clumps of palmyras, acacias, and date-trees with their nests. These are formed in a very ingenious manner by long grass woven together in the shape of a bottle, and suspended by the other end to the extremity of a flexible branch, the more effectually to secure the eggs and young brood from serpents, monkeys, squirrels, and birds of prey. These nests contain several apartments appropriated to different purposes: in one the hen performs the office of incubation; another, consisting of a little thatched roof, and covering a perch, without a bottom, is occupied by the male, who with his chirping note cheers the female during her maternal duties.”

The species, however, which forms the most singular nest, or mass of nests, is the SOCIABLE GROSBK, or WEAVER BIRD, of southern Africa, (*Ploceus socius*.) Hundreds of these birds, in one community, join to form a structure of interwoven grass, (the sort chosen being what is called Boshman’s grass,) containing various apartments, all covered by a sloping roof, impenetrable to the heaviest rain; and increased year by year as the increase in numbers of the community may require.

The following is Le Vaillant’s description of these birds and their aërial city. “I observed, on the way, a tree with an enormous nest of those birds, to which I have given the appellation of *Republicans*; and as soon as I arrived at my camp, I dispatched a few men with a wagon to bring it to me, that I might open the hive and examine its structure in its minutest parts. When it arrived, I cut it to pieces with a hatchet, and saw that the chief portion of the structure consisted of a mass of Boshman’s grass, without any mixture, but so compact



THE NEST OF THE SOCIABLE GROSBK.

and firmly basketted together as to be impenetrable to the rain. This is the commencement of the structure; and each bird builds its particular nest under this canopy, the upper surface remaining void; without, however, being useless, for as it has a projecting rim and is a little inclined, it serves to let the rain-water run off, and preserves each little dwelling from the rain. Figure to yourself a huge, irregular, sloping roof, all the eaves of which are completely covered with nests crowded one against another, and you will have a tolerably accurate idea of these singular edifices. Each individual nest is three or four inches in diameter, which is sufficient for the bird. But as they are all in contact with one another around the eaves, they appear to the eye to form but one building, and are distinguishable from each other only by a little external aperture which serves as an entrance to the nest; and even this is sometimes common to three different nests, one of which is situated at the bottom and the other two at the sides. According to Paterson, the number of cells increasing in proportion to the increase of inhabitants, the old ones become streets of communication formed by line and level. No doubt, as the republic increases, the cells must be multiplied also; but it is easy to imagine that, as the augmentation can take place only at the surface, the new buildings will necessarily cover the old ones, which must therefore be abandoned. Should these even, contrary to all probability, be able to subsist, it may be presumed that the depths of their situation, by preventing any circulation and renewal of the air, would render them so extremely hot as to be uninhabitable. But while they would thus become useless, they would remain what they were before, real nests, and change neither into streets nor sleeping rooms.

“The largest nest that I examined, was one of the most considerable I had any where seen in the course of my journey, and contained three hundred and twenty inhabited cells, which, supposing a male and a female to each, would form a society of six hundred and forty individuals. Such a calculation, however, would not be exact.” It appears that in every flock the females are

more numerous by far than the males ; many cells, therefore, would contain only a single bird. Still, the aggregate would be considerable ; and, when undisturbed, they might go on to increase, the structure increasing in a like ratio, till a storm, sweeping through the wood, laid the tree and the overwhelming edifice it sustained in one common ruin.

The Sparrows and Finches next claim a passing notice. In these we find the beak short, conical, convex on its sides, and somewhat arched along the ridge. Many closely approximate to the linnets in their food and manners.

The first example is that bold and familiar bird the COMMON SPARROW, (*Pyrgita domestica*, CUV.) with which we are all acquainted. Wherever man erects his habitation, at least in Europe, there the Sparrow fixes its abode ; resigning woods and fields to others, it makes the house-top its home—the street, the farm-yard, the garden, and the lane its domain ; where it travels in quest of food. In summer it lives in pairs ; in autumn and winter, flocks congregate together, and scatter themselves over the adjacent corn fields, often committing extensive depredations, which are however atoned for by the destruction it makes during summer among caterpillars and insects, upon which its young are largely fed. The nest of the Sparrow is a loose mass of mingled materials, put together with little art, and in any convenient situation ; the fork of a tree, a hole in the thatch, or a crevice in the brick-work of the house, or under the eaves, are all equally acceptable.

In Italy we find, it would appear, not our Sparrow, but a species distinguished by the head of the male being entirely chestnut ; it is termed *Pyrgita cisalpina*, and is said to extend over the southern countries, but is never met with north of the Alps. In Spain, Sicily, the Archipelago, and Egypt, a third species (*Pyrgita Hispaniolensis*) occurs, distinguished by a darker plumage and by the black of the throat extending over the whole of the chest.

The Sparrow is one of the birds to which allusion is made more than once in the sacred Scriptures. The blessed Redeemer, by way of encouragement to his disciples, thus speaks of the goodness and providence of God. "Are not two Sparrows sold for a farthing? and one of them shall not fall on the ground without your Father.... Ye are of more value than many Sparrows," Matt. x. 29—31.

The Psalmist notices the familiarity of this bird, and its places of resort, when, in Psalm lxxxiv. 3, he says, "Yea, the Sparrow hath found an house, and the swallow a nest for herself, where she may lay her young, even thine altars, O Lord of hosts, my King and my God;" and again, when complaining of his desolate condition in the days of his trouble, "I watch, and am as a Sparrow alone upon the house top." Psalm cii. 7.

We shall not dilate further upon a bird, the description of which at all may be deemed somewhat superfluous, but proceed to another example. Among many others, America presents us with the CHIPPING SPARROW, (*Fringilla socialis*, WILS.) which seems to take there, in some degree, the same station as its European relative, inhabiting, as Wilson states, "during summer, the city in common with man, building in the branches of the trees with which our streets and gardens are ornamented, and gleaning up crumbs from our yards, and even our doors, to feed his more advanced young with. I have known one of these birds attend regularly every day during a whole summer, while the family were at dinner, under a piazza fronting the garden, and pick up the crumbs that were thrown to him. This sociable habit, which continues chiefly during the summer, is a singular characteristic. Towards the end of summer he takes to the fields and hedges, until the weather becomes severe with snow, when he departs for the south."

The SNOW FINCH (*Fringilla nivalis*, LIN.) has much the manners of the snow bunting, and, like that bird, is a native of the dreary regions of the north, migrating

southwards during the severities of winter. In Europe it is found in the higher range of the Alps and Pyrenees, on the very verge of the line of perpetual snow, whence it descends to the lower range of hills only when compelled by the season; but its strong hold is within the arctic circle. In America its migrations are made upon an extensive scale, extending, as Wilson states, "from the arctic circle, and probably beyond it, to the shores of the Gulf of Mexico, spreading over the whole breadth of the United States from the Atlantic Ocean to Louisiana; how much farther I am unable to say. About the 20th of October they make their first appearance in those parts of Pennsylvania, east of the Alleghany mountains. At first they are most generally seen on the borders of woods, among the falling and decayed leaves, in loose flocks of thirty or forty together, always taking to the trees when disturbed. As the weather sets in colder, they approach nearer the farm-house and villages; and on the appearance of what is usually called falling weather assemble in larger flocks, and seem doubly diligent in searching for food: this increased activity is generally a sure prognostic of a storm. When deep snow covers the ground, they become almost half domesticated; they collect about the barn, stables, and other outhouses, spread over the yard, and even round the steps of the door, not only in the country and villages, but in the heart of our large cities, crowding round the threshold early in the morning, gleaning up the crumbs, appearing very lively and familiar. They have also recourse at this severe season, when the face of the earth is shut up from them, to the seeds of many kinds of weeds that still rise above the snow in corners of fields and low sheltered situations." They may now be seen associated with several species of their congeners, all engaged in the same assiduous search for food, pensioners upon the bounty of Providence. As spring approaches, these flocks of Snow Birds all return to the north, where, in realms little visited by man, they rear their progeny. The nest is said to be placed on the ground among the grass, several being clustered together within a little distance of each other. Head

bluish ash-colour; back slaty brown; wing-coverts and secondaries, except the two next the body, white. Quill-feathers black; as are also the two middle tail-feathers; the rest being white, tipped with black; the whole of the under surface pure white. The beak becomes yellowish in winter, but is black during summer.

That beautiful but common bird the CHAFFINCH (*Fringilla cælebs*) belongs to the present section. We mention it only on account of its elegant nest, which is a choice specimen of felt-making, as practised by a bird whose ingenuity is not only seen in the work itself, but in the adaptation of the structure to the locality chosen so as to elude observation. The exterior is composed either of green moss or lichens, and is merely a thin coating round a well felted mass of wool, hairs, vegetable fibres, and moss, the lining being hairs. Some time since, the writer found a Chaffinch's nest against the main stem of a large old holly tree, supported by the prongs of the twigs or branches which diverge from the stem. The outside was composed of green lichen, so smooth and so closely resembling the colour of the bark and leaves, that it was difficult to believe it was a nest. It was left untouched;—why, indeed, destroy for no purpose so exquisite and laborious a piece of workmanship?

In the present section may be placed that diminutive and pretty bird the AMADUVADE, (*Fringilla amandava*,) brought in such numbers from Bengal, and other parts of the east, to linger a few months in captivity beneath an uncongenial sky. In size this little Finch is scarcely so large as our wren: it has all the manners of its race, being lively and alert, uttering continually a soft twitter, which can however hardly be called a song. The bill is dull red; the general plumage is brown, with a mixture of red, the feathers of the wings, breast, and sides having each a dot of white at the tip. In the female the under surface inclines to dull white.

The next section is that of the Tanagers, (*Tanagra*,)

a numerous race of birds peculiar to America, and richly painted, at least most of them, with the most brilliant tints, scarlet, and green, and blue, being profusely lavished on their livery. In their general manners they much resemble the sparrows and finches; in some respects, however, they exhibit a relationship to the flycatchers, their food not only consisting of berries and soft fruits, but of insects also, such as bees, wasps, beetles, &c. which are pursued and taken upon the wing. The form of the bill is somewhat conical, but inflated at the sides, the edge of the upper mandible being irregular as if slightly toothed.

As one of the most richly coloured may be noticed the PARADISE TANAGER, of Guiana, (*Tanagra Tatao.*) In length it is about six inches. The top and sides of the head are yellowish green, the feathers having a distinct scaly appearance; the back of the neck and the back are bright fire colour; the fore part of the neck is glossy violet blue; the breast and under surface sea-green; the lesser wing-coverts green gold; the middle ones blue; the greater violet blue; the tail and quills black, the latter having blue margins. The plumage of the female is much duller and more obscure than that of the male.

This gaudy bird associates in flocks, and may be considered to a certain degree as migratory, appearing at Cayenne in September: after a short stay it departs, but is seen again in April and May. Waterton states that a species of wild fig-tree in Guiana is frequented by Tanagers, and that wherever one is found, with ripe fruit upon it, numbers of these birds are sure to be there. This statement agrees with Latham's remark upon the present species: he says it frequents a "large tree," which flowers in September, the fruit soon setting, when it is attacked by the Paradise Tanager; it then departs, and returns in May, when the fruit is ripe.

Among the most beautiful may be reckoned the Spotted Green Tanager, (*T. punctata*;) the Bishop Tanager, (*T. episcopus*;) the Crested Tanager, (*T. cristata*),

and the Scarlet Tanager, (*T. rubra.*) The last is not, however, confined to the intertropical regions of the western world, but pays an annual visit to the more northern latitudes, spreading over the United States as far as Canada.

On the first of May this richly coloured bird makes his appearance in Pennsylvania, avoiding the neighbourhood of human habitations, the dense solitude of the woods being his favourite abode. His usual note is a monotonous repetition of the syllables *chip-churr*, repeated at short intervals. Wilson, however, states that he sometimes indulges in a mellow musical chant. His fare consists of fruit and berries and the larger kinds of insects.

The nest of this species is a loose flimsy structure, composed of broken flax and dry grass, placed on the branch of a tree. The eggs are three in number, of a dull blue, spotted with brown or purple. As the Scarlet Tanager leaves the United States in August, it has only time to rear a single brood in a season.

“Among all the birds,” says the writer just referred to, “that inhabit our woods, there is none that strikes the eye of a stranger or even a native with so much brilliancy as this. Seen among the green leaves, with the light falling strongly on his plumage, he really appears beautiful. If he has little of melody in his notes to charm us, he has nothing in them to disgust. His manners are modest, easy, and inoffensive; he commits no depredations on the property of the husbandman, but rather benefits him by the daily destruction in spring of many noxious insects; and when winter approaches he is no plundering dependant, but seeks in a distant country for that sustenance which the severity of the season denies to his industry in this. He is a striking ornament to our rural scenery, and none of the meanest of our rural songsters. Such being the true traits of his character, we shall always with pleasure welcome this beautiful inoffensive stranger to our orchards, groves, and forests. In length the Scarlet Tanager is six inches and a half; the tail is forked.” The colour of the male in full plumage is a brilliant scarlet over the whole of the body, the wings and tail being

deep black; the bill yellowish horn colour. The female is of a greenish colour above, and yellow below, the wings and tail being brownish black. The young males resemble the female till the succeeding spring, when the scarlet plumage begins to be assumed. The winter dress of the adult males, which is assumed during the moult after breeding, that is, early in August, is greenish yellow dappled with scarlet, in which state he leaves his summer residence, returning in full plumage on the return of spring.

We here leave the Tanagers and pass to our next section, the Grosbeaks. This section is characterized by the size, the strength, and often by the abruptness and inflation of the beak. The food consists almost exclusively of seeds, the kernels of fruits and berries. We may notice the Bulfinch, (*Pyrrhula vulgaris*, Cuv.;) the Hawfinch, (*Coccothraustes vulgaris*, Cuv.;) the Greenfinch, or Green Linnet, (*Coccothraustes chloris*,) as native examples. Foreign ones are very numerous. The Cardinal Grosbeak (*Coccothraustes cardinalis*) may be selected as an American example.

The Cardinal Grosbeak, often called in England, where it is kept in cages, the Virginia Nightingale, is a songster of no mean powers, the notes being clear and loud. From the dawn of day till noon its voice resounds with little intermission through its native groves during spring and summer, from March to the end of September. In America it is one of the commonest cage-birds, and numbers are annually imported into England and the adjacent continent. Like the mocking bird, this species is most numerous “to the east of the great range of the Alleghany mountains;” it is also common in the Bermudas. “In Pennsylvania and the northern states it is rather a scarce species; but through the whole lower parts of the southern states, in the neighbourhood of settlements, I found them much more numerous; their clear and lively notes, in the months of January and February, being at that time almost the only music of the season. Along the roadsides and fences I found them hovering in half dozens together, associated with snow birds and various

kinds of sparrows. In the northern states they are migratory, but in the lower parts of Pennsylvania they reside during the whole year, frequenting the borders of creeks and rivulets, in sheltered hollows covered with holly, laurel, and other evergreens. They love also to reside in the vicinity of fields of Indian corn, a grain that constitutes their chief and favourite food. The seeds of apples, cherries, and many other sorts of fruit, are also eaten by them; and they are accused of destroying bees." The nest is constructed of twigs, weeds, dried grass, and coarse vegetable fibres, the inside being lined with materials of a fine texture; it is usually placed in a thickly foliated tree, such as a cedar or laurel: the eggs are dull white thickly marked with brownish olive.

The upper surface of the Cardinal Bird is dull red; the head, neck, and under parts bright vermilion, except that the forehead and chin are black. The bill is like bright coral, thick, and powerful; the head is ornamented with a long pointed crest, capable of being elevated or depressed at pleasure. Length eight inches. The plumage of the female is brownish olive above; the under surface dusky red; the wings and tail red.

With the Grosbeaks may be placed a group of birds, termed Colies, (*Colius*,) characterized by the beak being short, thick, conical, somewhat compressed laterally, and arched. The feathers of the tail are very long, and graduated. The hind toe is capable of being directed forwards in a line with the other toes. The plumage consists of fine silky feathers; the colour is generally gray. These are birds peculiar to Africa and India: they climb almost in the same manner as parrots; live in flocks, build their nests in clusters on the same tree, and sleep suspended by their claws from the branches all huddled close together. Fruits are said to form their principal food.

The Crossbills (*Loxia*) form the last section. We here find the mandible of the beak compressed, elongated, and bent in contrary directions, so that their points cross each other. This singular form is a wise provision of the Creator for enabling the bird to feed on the seeds of

various kinds of fir, which it has to disengage from beneath the scales of the cone. By opening the bill so as to bring the two points together, the bird manages to insert this natural instrument beneath the hard scale of the fir-cone, then closing the mandibles the two points pass each other, raise up the scale, and thus detach the seed, which is adroitly seized. Several species are known,



THE CROSSBILL.

all natives of the northern regions of both continents. In their manners they display something of the parrots ; like them they climb, though less habitually and easily ; and also use the claws in grasping the cones while engaged in taking out the seeds. Dense and gloomy pine forests are their favourite abode. The Common Crossbill, the Parrot Crossbill, and the White-winged Crossbill, are natives of Europe. America has the latter, and if not the first, either a variety or a closely allied species.

The CROSSBILL (*Loxia curvirostra*) is a rare bird in England, but is more frequently to be met with in the fir-woods of Scotland. Its strong-hold, however, is the vast pine forests of the north of Europe, where it rears its progeny, the nest being placed on the middle of a bough among the clusters of spiked leaves.

The American species (*Loxia Americana*) is, as Wilson states, a “regular inhabitant of almost all our pine forests situated north of 40°, from the beginning of September to the middle of April.” The great pine swamp in Northampton county, Pennsylvania, is at that time their favourite rendezvous; but they pass northwards before May, none remaining in the deepest recesses of that gloomy wilderness. While sojourning in their winter quarters they “appear in large flocks, feeding on the seeds of the hemlock and white pine; have a loud, sharp, and not unmusical note; chatter as they fly; alight during the prevalence of deep snows before the door of the hunter, and around the house, picking off the clay with which the logs are plastered.” “At such times they are so tame as only to settle on the roof of the cabin when disturbed, and a moment after descend to feed as before.” “The Crossbills are subject to considerable changes of colour; the young males of the present species being during the first season olive yellow mixed with ash; then bright greenish yellow intermixed with spots of dusky olive; all which yellow plumage becomes in the second year of a light red, having the edges of the tail inclining to yellow.” This roseate tint is not, however, permanent; it appears to be exchanged before the time of breeding for a dull olive green above, and dull yellow below, which may be considered as the fully adult state of plumage.

Here may be closed this sketch of the Fringillidæ, a numerous and interesting family, in which much yet remains for the naturalist to accomplish. We must, however, hasten to the next; it is one which has a wide range, its members being natives respectively of most parts of the old and new world. None, however, have been hitherto discovered in Australia.

FAMILY THE SECOND, STURNIDÆ, or the STARLINGS.
—The beak is long and conical, running to a sharp point from a stout base. The nostrils are small and round.



In some genera, the ridge of the upper mandible encroaches upon the forehead ; in others, the beak is depressed at its extremity. The diet is of a mixed kind, consisting of grains, insects, caterpillars, &c. Many associate in flocks, and build artful nests, in clusters, like the weaver bird ; others, again, are solitary during summer, and build in rocks, towers, or in trees, but collect into troops in winter, to separate on the return of spring.

Our first example is the well known STARLING, (*Sturnus vulgaris*.) The Starling belongs to a group peculiar to the old world, but not containing many distinct species. The present, besides being found throughout nearly the whole of Europe, is also brought from China, the Himalaya, the Cape of Good Hope, and the northern region of Africa ; its habitat, therefore, is very extensive. The Starling is a most beautiful bird, and soon becomes familiar in confinement, learning with ease to repeat not only tunes and words, but even sentences. Its natural song is a low, sweet warble. During the breeding season it associates with its mate alone ; the nest is constructed generally in the crevices of towers, steeples, or tall chimneys, and not unfrequently in a deserted crow's nest ; the eggs are pale blue. After the breeding season is over, these birds immediately congregate together, and form vast flocks, which, often intermingled with rooks, scatter themselves over the fields and pastures in search of food. They mix fearlessly among the grazing cattle, attracted

by the insects abounding in such situations, and not unfrequently pick the larvæ of the gadfly from the hides of the patient animals. After the busy labours of the day, on the approach of dusk, the scattered thousands collect into one closely arrayed phalanx, and wheel and sweep through the air, in winding mazes, as they bear away to their place of repose. This is generally a thick coppice, or extensive reed bed; and over it they wheel, and rise and sink, and perform a multitude of beautiful aërial evolutions, all acting in unison, as if guided by a signal-word of command, before they finally settle for the night.

The Starling undergoes several changes of plumage, which were, till recently, but little understood. The young, during the first autumn, are of a uniform ashy brown; after October, the period of moult, the general plumage is black, with bronze, violet, and green reflexions, each feather (except those of the quills, secondaries, and tail) being tipped with a spot of yellowish white. This condition of plumage lasts till the third year, when the bill becomes yellow, and the throat and chest covered with loose lanceolate or lance-shaped feathers, of a rich black, with purple and golden green reflexions, varying in every light; the head and under parts are of this hue also. The back is greenish black, with small triangular spots of reddish white. This is the permanent state of plumage; and it is gradually acquired.

The genera *Cassicus*, *Icterus*, and *Xanthornus*, containing Starlings, with pointed conical beaks, arising from a thick base, but differing in minor peculiarities in each genus, belong exclusively to America. In the *Cassicus*, the upper mandible mounts up on the forehead in a swollen projection; in the *Icterus*, a narrow slip runs up on the forehead; in the *Xanthornus*, the bill is shorter than in the two other genera, and without a frontal projection. The term of *Oriole*, given to the birds of these genera before the genus *Oriolus*, or that of the true Orioles, was restricted, as at present, is still retained.

Our first example is the BALTIMORE ORIOLE, (*Icterus Baltimorus*, DAUD.) This elegant and interesting bird is a summer visitor to the United States. It arrives, says Audubon, "from the south, perhaps from a more distant region, and enters Louisiana as soon as spring commences there. It approaches the planter's house, and searches amongst the surrounding trees for a suitable place in which to settle for the season. It prefers, I believe, the trees that grow on the sides of a gentle declivity. The choice of a twig being made, the male Oriole becomes extremely conspicuous. He flies to the ground, searches for the longest and driest filaments of moss, which in that state is known by the name of Spanish beard, and whenever he finds one fit for his purpose, ascends to the favourite spot where the nest is to be, uttering all the while a continued chirrup, which seems to imply that he knows no fear, but, on the contrary, fancies himself the acknowledged king of the woods." "No sooner does he reach the branches than with bill and claws, aided by an astonishing sagacity, he fastens one end of the moss to a twig, with as much art as a sailor might do, and takes up the other end, which he secures also, but to another twig a few inches off, leaving the thread floating in the air, like a swing, the curve of which is perhaps seven or eight inches from the twigs. The female comes to his assistance with another filament of moss, or perhaps some cotton thread, or other fibrous substance, inspects the work which her mate has done, and immediately commences her operations, placing each thread in a contrary direction to those arranged by her lordly mate, and making the whole cross and recross, so as to form an irregular network." "The nest has now been woven from the bottom to the top, and so secured that no tempest can carry it off without breaking the branch to which it is suspended. Remark what follows. This nest contains no warming substance, such as wool, cotton, or cloth, but is almost entirely composed of the Spanish moss, interwoven in such a manner that the air can easily pass through it. The parents are no doubt aware of the intense heat which will exist ere long in this

part of the world, and moreover take especial care to place their nest on the north-east side of the trees. On the contrary, had they gone as far as Pennsylvania or New York, they would have formed it of the warmest and softest materials, and have placed it in a position which would have left it exposed to the sun's rays; the changes in the weather during the early period of incubation being so great there, that the bird looks on these precautions as necessary to ensure the life of its brood against intense cold, should it come; while it knows that the heat in these northern latitudes will not be so great as to incommode them." In confirmation of this statement, Wilson, speaking of this bird, which he says arrives in Pennsylvania in May, observes of a nest before him, "The materials are flax, hemp, tow, hair, and wool, woven into a complete cloth; the whole tightly sewed through and through with long horse hairs, several of which measure two feet in length. The bottom is composed of thick tufts of cow-hair, sewed also with strong horse-hair. So solicitous is the Baltimore to procure proper materials for his nest, that, in the season of building, the women in the country are under the necessity of watching their thread that may chance to be out bleaching, and the farmer to secure his young grafts; as the Baltimore finding the former, and the strings which tie the latter, so well adapted for his purpose, frequently carries off both; or should the one be too heavy, and the other too firmly tied, he will tug at them a considerable time before he gives up the attempt. Skeins of silk, and hanks of thread, have been often found, after the leaves were fallen, hanging round the Baltimore's nest, but so woven up and entangled as to be entirely irreclaimable." The actions of this bird are graceful and easy; its flight is straight; its song is a clear, mellow whistle, extremely agreeable. The male does not acquire his full plumage till the third year, it is then rich and glowing. The head, throat, upper part of the back and wings are glossy black; the lower part of the back and whole of the under parts a bright orange, deepening into vermilion on the breast. The two middle tail-feathers, and the base of the

others, are black, the remainder being of a dull orange. Length seven inches three quarters. The female has the orange-yellow much duller than her mate, and the black is clouded with olive. The food consists principally of insects and their larvæ, together with mulberries, cherries, strawberries, and other fruit.

The ORCHARD ORIOLE (*Icterus mutatus*, W.) is another of this genus, which visits the United States in spring, and fixes his pendent nest to the extremity of the twigs of spreading trees. Wilson says, "They are so particularly fond of frequenting orchards, that scarcely one orchard in summer is without them. They usually suspend their nest from the twigs of the apple-tree, and often from the extremities of the outward branches. It is formed exteriorly of a particular species of long, tough, and flexible grass, knit or sewed through and through in a thousand directions, as if actually done with a needle. An old lady of my acquaintance, to whom I was one day showing this curious fabrication, asked me, in a tone between joke and earnest, whether I did not think it possible to teach these birds to darn stockings? The nest is hemispherical, three inches deep by four in breadth; the concavity scarcely two inches deep by two in diameter. I had the curiosity to detach one of the fibres or stalks of dried grass from the nest, and found it to measure thirteen inches in length, and in that distance it was thirty-four times hooked through and returned, winding round and round the nest! The inside is usually composed of the light downy appendages attached to the seeds of the *platanus occidentalis*, or button wood, which form a very soft and commodious bed. Here and there the outward work is extended to an adjoining twig, round which it is strongly twisted, to give more stability to the whole, and prevent it from being upset by the wind. When they choose the long pendent branches of the weeping willow to build in, as they frequently do, the nest, though formed of the same materials, is made much deeper, and of lighter texture. The circumference is marked out by a number of these pensile twigs that

descend on each side, like ribs, supporting the whole ; their thick foliage, at the same time, completely concealing the nest from view. These long pendent branches, being sometimes twelve and even fifteen feet in length, have a large sweep in the wind, and render the first of these precautions necessary to prevent the eggs or young from being thrown out ; and the close shelter afforded by the remarkable thickness of the foliage is, no doubt, the cause of the latter." The Orchard Oriole is a lively, active, restless bird, never idle, never inanimate, but perpetually on the alert, his shrill and rapid carol being maintained with little intermission. He keeps up a system of destruction among the insect tribes and caterpillars which infest the leaves and buds of fruit trees, thereby rendering man no little service, for hundreds of these pests to the farmer are not sufficient for the daily consumption of himself, his mate, and their young ; the multitudes thus destroyed by a single pair of birds must be prodigious.

Our last example is the REDWINGED STARLING, (*Icterus phæniceus*, DAUD.) of whose habits a rapid sketch may be given, drawn chiefly from the account of the great American ornithologists. Notorious from their depredations in the cornfields, which render them the abhorrence of the farmer, the Redwinged Starlings have, notwithstanding the devastations they make, much to interest the naturalist. Though generally migratory in the states north of Maryland, they are found, during winter, in immense flocks, in Virginia, the Carolinas, Georgia, and Louisiana, particularly near the seacoast, and in the vicinity of large rice and cornfields ; the gleanings of rice, corn, and buckwheat supplying them with abundance of food. While thus associated in thousands, nothing can be more beautiful than their aerial evolutions. Sometimes they appear "like an enormous black cloud carried before the wind, varying its shape every moment." On suddenly rising from the fields, they produce a sound like thunder ; "the glittering of innumerable wings of the brightest vermilion, amid the black cloud" they form,

producing a most splendid effect. Again, descending “like a torrent, and covering the branches of some detached grove or clump of trees, the whole congregated multitude commences one general concert or chorus, to be plainly distinguished at the distance of more than two miles; and which, when listened to at the intermediate space of about a quarter of a mile, with a slight breeze of wind to swell and soften the flow of its cadences, is grand, and even sublime.” “About the twentieth of March, or earlier if the season be open, they begin to enter Pennsylvania in numerous though small parties. These migrating flocks are usually observed from daybreak to eight or nine in the morning, passing to the north, chattering to each other as they fly along.” “Selecting their old haunts, every meadow is soon enlivened by their presence,” and every creek, swamp, and pond has its party till the middle of April, when all separate into pairs and look out for a breeding place. At this season their food consists almost exclusively of “grubs, worms, caterpillars, and coleopterous insects, which they procure by searching with great industry in the meadows, the orchards, or the newly ploughed fields,” walking with a quick but easy, graceful step. The millions of noxious insects they destroy at this season is probably more than an equivalent for the grain they consume in autumn and winter. Hence the ploughman suffers them to follow him unmolested. An alder bush or thick tuft of rank grass or weeds, within the precincts of a marsh or swampy meadow, are generally selected for the site of the nest, which is composed of a quantity of coarse weeds, or rushes, lined with fine grass; the eggs are light blue, with a few dashes of black. Two broods are raised during the season. The male is bold in defence of his nest, attacking every intruder with great vociferation.

In September the redwings again congregate, immense flocks gathering from all quarters, and pouring down upon the fields of maize or Indian corn, the ears of which being then in their soft and milky state, are a temptation too great to be resisted. In the low countries, near the

seacoast, and along the flats which border the larger rivers, myriads are seen to pour down like a tempest, blackening half an acre at a time, each individual eager in the work of devastation. "All the attacks and havoc made among them at this time, with the gun, and by the hawks, several species of which are their constant attendants, have little effect on the remainder. When the hawks make a sweep among them, they suddenly open on all sides, but rarely in time to disappoint them of their victims; and though repeatedly fired at with mortal effect, they only move from one field to an adjoining one, or to another quarter of the same inclosure." When the maize ripens, and the ears become hard, towards the end of September the red-wings betake themselves to the extensive reed-beds along creeks, rivers, and lakes, where they find in the seeds of wild oats, various grasses, and weeds a plentiful supply. These reed-beds form their roosting place; and being generally environed by morasses, they constitute a sort of strong hold, during winter, till spring invites them back to their respective breeding haunts.

The general plumage of the Red-winged Starling is of a glossy black, with the exception of the lesser wing-coverts, the lower row being yellow, the rest rich scarlet. The female differs considerably in size and colouring, being of a mottled brownish black above; the shoulders pale scarlet; the under parts grayish brown, spotted with black. The young males of the year resemble the female. Length of the male nine inches, of the female seven and a half.

Before concluding the present family, the genus *Pastor* must be noticed, the members of which are confined to the old world. The most remarkable are the Rose-coloured Ouzel of Europe, (*Pastor roseus*,) the Chinese Starling, (*Pastor cristatellus*,) and the Silky Starlings of India, (*Pastor Pagadorum*, *P. tristis*, &c.) The Chinese Starling, from its docility and imitative powers, is a favourite cage bird in China, and is often brought to Europe, where it is highly esteemed.

In India and Africa we find a genus, by some writers associated with the thrushes, by others with the starlings; the genus *Lamprotornis*, or that of the shining thrushes, so termed from the metallic gloss of their plumage. They appear to form a link between these two families, having points of agreement with each respectively. They are restless and noisy in their habits, and congregate in flocks, which commit much damage in cultivated grounds.

FAMILY THE THIRD.—CORVIDÆ. The third family now presents itself, namely, that containing the Crows, Pies, Rollers, &c.; birds characterized by a strong conical bill, more or less compressed at the sides, and often with the ridge of the upper mandible arched; in their food they are in a great measure *omnivorous*.

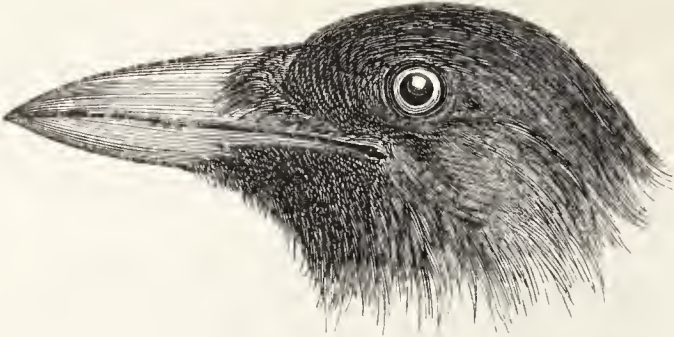
Linnaeus united the Crows, Pies, and Jays under one genus, and though they are now subdivided, and very justly so, still they exhibit many features in common. They are familiar, cunning, and clamorous, easily tamed, and proverbial for their inquisitiveness, imitative faculties, audacity, and habits of pilfering; keys, spoons, or any glittering articles in the way, they seize with marvellous promptitude, and slyly convey to a secret hiding-place. It is not easy to account for this habit; why the magpie should be attracted by a shining substance, in every respect useless to itself, and why it should be induced instinctively to conceal it, is altogether strange: still the fact is indisputable.

The first genus is that of *Corvus*, characterized by a strong compressed conical bill, covered at the base with stiff bristly feathers, which are directed forwards, and conceal the nostrils.

The RAVEN, (*Corvus Corax*,) we may select as our first example.

Few birds are more extensively spread over the world than the Raven, and few have obtained, from the days of antiquity, a greater share of notoriety. A bird of augury

among the Romans, its flight and hoarse tones were supposed, according to circumstances, to foretell the good or



HEAD OF THE RAVEN.

evil that should occur on the morrow ; while in other countries, its presence was dreaded as the foreboder of dire calamity, disease, or death. Thus one of our earlier poets—

“ The sad presaging Raven tolls
The sick man’s passport in her hollow beak ;
And, in the shadow of the silent night,
Doth shake contagion from her sable wing.”

No where perhaps more than in our own island did these superstitious notions prevail, till the recent spread of true knowledge has taught the most unenlightened, that life and death, and all events, are in His hands, who “ ruleth by his power for ever.” The Raven, in accordance with the superstition of the times, was the standard of the marauding Danes, whose merciless bands ravaged England in the early period of our history ; and this, when seen, was indeed ominous of carnage, for it was a signal for the strife of blood. Bold and sly, and decked in plumage of glossy black, the Raven is by no means an inelegant or uninteresting bird ; hence it is often kept in a domesticated state in inn yards and similar places ; where it renders itself amusing by a variety of cunning and audacious tricks. The writer has seen one, which had been long the ruler of an inn yard, hop with an air of assumed indifference behind a horse’s heel, upon which he would

strike a smart blow with his beak, and then skulk off, before the horse could return the favour. With dogs and cats he stood on no ceremony, but boldly advanced to give battle, and once almost frightened a young spaniel to death, which having been accustomed to dash at sparrows and pigeons with great courage, made a similar attack upon Ralf, who, nothing daunted, struck him upon the face and eyes, and chased him yelping round the yard. The Raven is a true carrion eater, mixing, in hot countries, with the vultures at the feast; where it seems to consider the eyes of the decaying carcass as the most delicate morsel, habitually seizing upon them. The eyes of criminals executed and exposed upon gibbets or poles, as is common in some parts of the East, as well as of persons who have perished by the way, and lie unheeded, are, we are credibly informed, sure to be torn out by these birds, which may be seen clustering around. In our own country it is reported to act in the same manner with respect to dead sheep and lambs, often commencing before life be extinct. This habit has been noticed in very early times, for we read in Prov. xxx. 17, “The eye that mocketh at his father, and despiseth to obey his mother, the ravens of the valley shall pick it out:” a warning to the disobedient child to expect an untimely death, and the disgraceful exposure of his remains.

In addition to carrion, this bird feeds upon grain, worms, grubs, reptiles, and shell-fish, “the last of which, in the manner of the crow, it drops from a considerable height in the air in order to break the shells.” The eggs and young of birds, and even of domestic poultry are eagerly seized; hence it often commits, unsuspected, (for it is artful and sly in its approach,) great havoc among the farmer’s broods. Mr. Lambert, third volume, Trans. Lin. Soc. mentions having seen the Raven feeding its young out of the nests of a rookery.

The Ravens generally keep in pairs; they are however sometimes seen in small flocks near the coast, after the breeding season. Their flight is high, and, like the rook, they often wheel and tumble in the air. Length twenty-six inches.

Besides the passage already quoted, we find many others in the sacred Scriptures, wherein allusion is made to the bird before us. The earliest notice occurs in Genesis viii. 7, where we learn that Noah, in order to ascertain how far the waters of the deluge had subsided, “sent forth a raven, which went forth to and fro, until the waters were dried up from off the earth.” But it did not return; probably the carcasses floating upon the waters tempted it to remain; an emblem of the sensualist, preferring the corrupt pleasures of the world to a secure abode in that refuge to which the believer always resorts.

In Leviticus this bird is enumerated among such as are unclean, and forbidden for food. Again we find a distinct notice of it, in the First Book of Kings, chap. xvii. 4-6. Elijah having prophesied against Ahab, and predicted a dearth in the land, is directed to hide by the brook Cherith before Jordan; and it is added, “Thou shalt drink of the brook, and I have commanded the ravens to feed thee.”—“And the ravens brought him bread and flesh in the morning, and bread and flesh in the evening.”

In Luke xii. our blessed Redeemer is described as warning his disciples against being over anxious about earthly things, which are transient, to the neglect in the least degree of those which are of more value than the world, treasures incorruptible, an inheritance eternal in the heavens; and we find him using this remarkable expression, “Consider the ravens: for they neither sow, nor reap; which neither have storehouse, nor barn; and God feedeth them: how much more are ye better than the fowls.” verse 24.

The CROW (*Corvus corone*,) is another species of the present genus, closely resembling the raven in its general habits; it is however considerably smaller, and much more common. We shall not enlarge upon its well known manners and propensities, but pass on to the ROOK, (*Corvus frugilegus*,) a bird of gregarious habits, which has long been unjustly aspersed as the destroyer of grain; while in truth it is one of the best friends to the farmer, notwithstanding some little injury it may do to the

rising corn in its search after grubs, or the larvæ of various beetles and worms, which constitute its principal food. Though uniting in flocks, and building their nests in colonies, several being placed often close together upon the same tree; a good deal of fighting at first takes place among them; and it often happens that the sticks which an industrious pair have been collecting during the day are forcibly taken away by a set of plunderers; after a short time, however, when the nest-building of the community is over, and the females are engaged in the task of incubation, all is quiet, and the male birds are active in procuring food for their patient mates. At this time, and while the young require support, the Rook is very diligent, being abroad with the first dawn of day, and continuing the search long after sunset, till night is fairly closed.

Where a rookery has once been established, it is difficult to prevent its continuance and yearly increase, except indeed by the total destruction of the whole flock. So partial are these birds to their old haunts, that though their trees be encircled with buildings, and at length become removed as it were from the fields and open country, still the colony continue to inhabit them, a circumstance which is very remarkable even in our metropolis, where there are several rookeries of considerable magnitude. In autumn the Rooks betake themselves to the fields and ploughed lands, and collect together in flocks sometimes of many thousands; at evening, long trains may be seen steadily sailing through the air to some general roosting-place or rendezvous for the night, whence they depart in the morning and return again towards dusk. At this season too, especially if the weather be windy, they may be observed shooting, abruptly wheeling, suddenly rising and descending with great rapidity, and in a manner totally different from their steady quiet mode of flight, as if impelled by some irresistible impulse. The same is the case with the raven and crow.

The cawing of a flock of rooks, especially if heard at a distance, is far from unpleasing, and harmonizes well with

rural sounds, filling up the universal chorus of the brute creation.

Much has been said relative to the bareness, or total deficiency of feathers, which we find around the base of the Rook's bill. Some have supposed it to result from its habit of digging in the ground; but this is an absurd idea, since other birds dig as much, and are yet well clothed on the forehead and under the beak. The fact is, that this bareness is a natural character, and occurs about the head, though perhaps not exactly in the same place, in several other examples of the present family.

The JACKDAW, (*Corvus Monedula*,) that noisy and familiar inhabitant of steeples, towers, and chimneys, and so noted for mimicry and thieving, need not detain us.

The PIES (*Pica*, CUV.) next claim a brief notice. They are distinguished by a shorter and more arched beak than is found in the genus *Corvus*, and by a long and graduated tail. They form a group of birds extensively spread over the colder, the temperate, and also over the hotter portions of the globe, examples equally occurring in India and the islands of the Indian archipelago, as well as in the northern regions of Europe and America. As it respects habits and manners, they are all noted for chattering, thievishness, cunning, and voracity. Our own MAGPIE (*Pica caudata*, RAY) is a fair specimen of the whole group.

We have few native birds more elegant in colouring or graceful in shape than the Magpie; the snowy white is admirably set off by the burnished black of its party-coloured plumage; and its long flowing tail gives a finish to the whole. Animated, prying, restless, and noisy, this bird is common in every park or coppice where trees afford it shelter and a place of nidification. Clumps of trees near the abode of man are among its favourite resorts, and even tall unclipped hedges are not unfrequently its nesting-place. He is the first to give shrill warning of the approach of the fox, the hawk, the cat, or

any similar animal, and no bird harasses the intruder on his retreat with greater pertinacity and vociferation. Not that he is himself free from the crime of poaching: quite the contrary; he is notorious for destroying the eggs, and even the young of pheasants, partridges, and small birds of every kind; nor are the unfledged chickens or ducklings of the farm-yard safe from his daring attacks. In captivity he is very amusing, and notwithstanding his pilfering, no one can contemplate his arch dark eye, full of meaning, his inquisitiveness, his familiarity, and hear his efforts at mimicry, without feeling an interest in him.



THE MAGPIE.

Just before pairing time, the Magpie is observed to assemble in small flocks, which meet, as if in consultation, in some retired field, near the skirts of a wood, or enclosed with thick hedges. If disturbed, away they fly in different directions, making a great clamour, but soon reassemble; the remainder of the year they live in pairs. Their nest is generally placed on the topmost bough of a tall tree, and is one of the most elaborate and substantial pieces of architecture which any of our birds construct.

Externally it is composed of sticks and twigs interwoven together, and becoming more compact as the building proceeds; within these twigs is usually a layer of mud, over which is arranged a lining of grasses and fine twigs; the whole is domed over with a framework of intertwined sticks, an aperture being left in the side for the ingress and egress of the bird. The eggs are six or seven in number, of a greenish white, mottled with brown.

Besides being distributed through Europe and the temperate parts of Asia, the Magpie occurs in North America, and is found as high north as latitude 41° , braving the severities of winter. Colonel Pike relates that in the month of December, in the neighbourhood of the North mountain, north latitude 41° , west longitude 34° , Reaumur's thermometer standing at 17° below 0, these birds were seen in great numbers. "Our horses," he adds, "were obliged to scrape the snow away to obtain their miserable pittance; and to increase their misfortunes, the poor animals were attacked by the Magpies, who, attracted by the scent of their sore backs, alighted on them, and, in defiance of their wincing and kicking, picked many places quite raw. The difficulty of procuring food rendered those birds so bold as to alight on our men's arms and eat meat out of their hands."

Closely allied to the common Magpie are several Indian species, as the *Kitta erythrorhyncha*, *Dendrocitta leucogastra*, *Sinensis*, and *vagabunda*; to which we may add a Javanese species called Cheketut or Bontoot by the natives, *Phrenotrix temia*, (Horsf.)—*Corvus varians*, (Latham.) This bird is described by Dr. Horsfield as being shy and retired, living on insects and wild fruits. Its flight is slow, and it sails heavily through the air, in a right line, about noon, towards the trees edging the forest. Instead of the base of the bill being furnished with bristles, it is encircled by a band of black velvet-like feathers, enclosing the eyes. The general colour is sooty black, with a rich varying tint of olive, having a metallic lustre. The body is about five inches, the tail seven inches. The two middle tail-feathers are broad, and composed of loose

plumes. The general contour is slender and elegant. This beautiful species may be considered as leading off from the pies to the birds of paradise.

The JAYS (*Garrulus*) are a numerous and well defined group, of which our British species is a fair example. They are principally distributed throughout the more temperate regions; and several species, closely resembling our own, are found in the Himalayan mountains, all characterized by the barred blue on the wing. In manner and habits all agree.

The JAY (*Garrulus glandarius*, Cuv.) is a much less common bird than the magpie, and is more exclusively a frequenter of the thick parts of the wood, where it feeds on acorns, berries, snails, insects, eggs, and sometimes nestling birds. Its natural voice is harsh, but it does not chatter so incessantly as the magpie; in captivity it may be taught to articulate pretty distinctly. Its nest is formed of sticks, not very artfully interwoven, lined with fine roots and fibres. The eggs are light green, marked with pale brown.

The general plumage is of a most beautiful vinous gray. The head is crested with narrow feathers, each having a streak of black; and a black patch occupies the cheeks below the eye. The wings are black with a white spot in the middle, the shoulders being of a fine azure blue, crossed with narrow bars of black. The upper tail-coverts are white, the tail black, as is also the beak.

The genus *Nucifraga*, characterized by the beak being straight and pointed, comprehends but two species, one the EUROPEAN NUTCRACKER, (*Nucifraga caryocatactes*, Vieill.) and the other newly discovered, from the Himalayan mountains. The Nutcracker is as large as a jay; its plumage is dark brown, dotted all over with oblong spots of white. Only one or two instances are on record of its having been seen in England; the forests of central Europe are its true habitat, especially in mountain districts. In its manners it much resembles the wood-

pecker, climbing trees, and boring the bark in search of insects, which, with wild fruits and young birds, constitute its food. Occasionally it is seen to descend into the open plains, in small flocks, but not at any stated periods. It is a bird of little fear or distrust, and soon becomes tame.

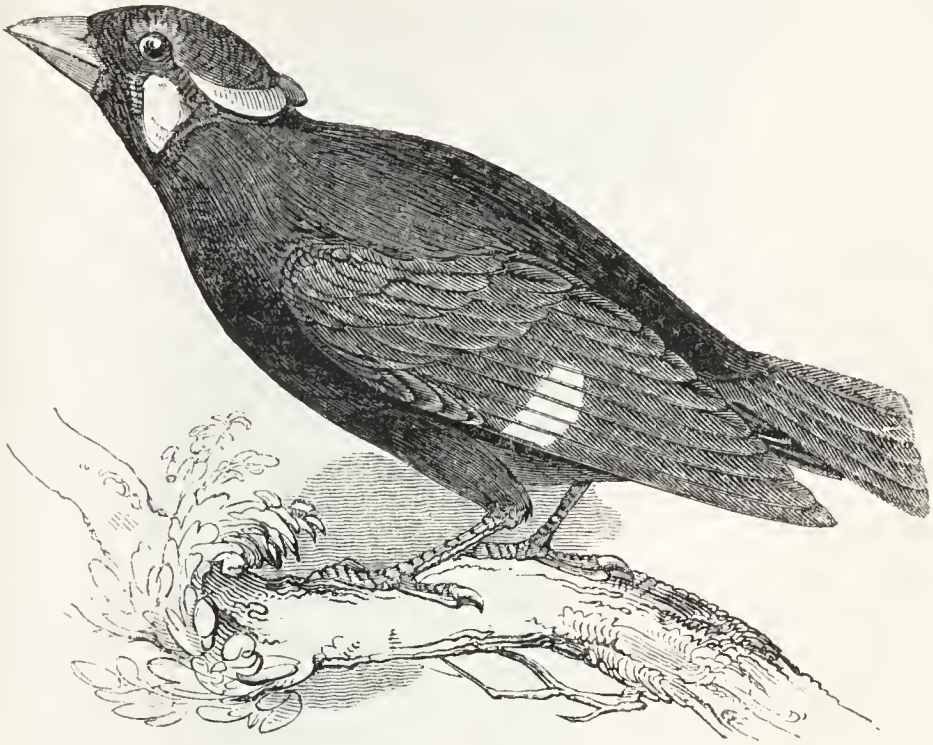
The genus *Coracias*, which includes the Rollers, is characterized by a stout straight beak, compressed laterally. It includes, among others, the EUROPEAN ROLLER, (*Coracias garrula*,) a native of the central parts of Europe, and common in the forests of Germany. It is a noisy restless bird, extremely wild and shy; it builds in holes of trees, and migrates to warmer climates on the approach of winter. Stragglers are not unfrequently shot in England; in France, however, it is known to breed.

The colours of the Roller are truly rich and beautiful. The general plumage is fine verditer blue, changing to green; the shoulders are azure blue; the first quill-feathers bluish black; the back buff brown; the tail-coverts purple. Size that of the jay. It is very common in the north of Africa.

The Mino Birds (*Eulabes*, Cuv.) are distinguished by a compressed beak, stout at the base, and gradually tapering. The nostrils are round. The head is ornamented with two loose hanging folds of naked skin on the occiput, and a naked space on each cheek. In manners these birds a good deal resemble the starlings, being restless and noisy; they are more apt perhaps than any other bird at imitating the human voice.

The example here selected, with a sketch from nature, is the INDIAN MINO BIRD, or Mino Grakle, the *Gracula religiosa* of Linnæus, (*Eulabes Indicus*, Cuv.) The Indian Mino Bird is frequently brought to Europe, where it is highly valued for its powers of imitation. It is docile, sprightly, and active, and bears our climate well. In size it is equal to a thrush; the head is covered with velvet-like feathers; two folds of skin of a yellowish colour hang from the occiput, and a naked space occupies

the cheeks below each eye. The bill is orange; the legs yellow. The whole plumage is rich glossy black, with the exception of a white bar on the wing.



THE INDIAN MINO BIRD.

We now arrive at a group of birds, perhaps the most interesting of the feathered race, a group distinguished by the splendour and elegance of their plumage, and by the long flowing plumes by which they are ornamented. We allude to the Birds of Paradise (*Paradisæa*, LIN.)

The Birds of Paradise are natives of New Guinea and the adjacent islands; they are characterized by a stout, compressed, and straight beak, the nostrils being obscured by velvet-like feathers, often glittering with a metallic lustre, which encircle the base of the beak; the legs are strong and the feet large; the wings are short, rounded, and feeble; the powers of flight at most but moderate. Several species are known, all of exceeding beauty. A few examples may be selected.

The GREATER BIRD OF PARADISE, (*Paradisæa major*.) This graceful bird was termed, by Linnæus



THE GREATER BIRD OF PARADISE.

and the older writers, *apoda*, or *footless*, upon the supposition that it had no feet, and that it was an inhabitant exclusively of the glowing regions of the sky, because the specimens, prepared and sent to Europe by the barbarous natives of New Guinea, were all observed to be without legs. The fact is, that the legs are large and strong; hence, as neither being ornamental, nor indeed wanted in skins made up for general commerce, they are always cut away. Yet it is strange that this species, the first of its genus made known to Europeans, was distinctly recorded by the introducer of it to science to be in no respect different from other birds. Antony Pigafetta, who accompanied Magellan in his voyage round the globe, brought this Bird of Paradise to Europe in the year 1522, and in his journal of the voyage he notes the fact of the legs of the bird being cut off by the natives as parts of no importance previously to selling them. Yet the celebrated Aldrovandus, having only seen such mutilated specimens, and never the birds in a state of nature, accused Pigafetta of gross falsehood in asserting that it was naturally furnished with legs and feet. Scaliger believed the bird to be footless; and in the eighteenth century, Count de Buffon, forgetting true philosophy, contributed to the propagation of so glaring an error. Having observed that some birds, as the ostrich, &c. cannot fly, but are reduced to walking; that others, again, as the awk, &c. though flying and swimming, cannot walk; he then goes on to state that there are others, “*qui comme les oiseaux de Paradis, ne marchent, ni le nagent, et ne peuvent prendre de mouvement qu’en volant* ;” that is, “which as the Birds of Paradise neither walk nor swim, and are incapable of any other mode of progression than that of flight.” Now it is unfortunate for Buffon’s assertion, that flight is a power in which the Birds of Paradise by no means excel; their wings are short, and they are, moreover, impeded by the flowing plumes, which arise either from the sides of the chest or from other parts of the body. On the other hand, their long and stout tarsi, and their large claws, indicate them to be birds whose habits require

these organs to be thus developed. They are birds whose life appears to be spent chiefly among the branches of the woods and forests, though sometimes, like the magpie, starling, and the other members of the present family, they visit the ground in search of food, which is said to consist not only of fruits and spicy berries, but of insects, and, in the case of the larger species, even of young birds.

The long plumes with which the Greater Paradise Bird is ornamented prevent its flying except against the wind; for this, if blowing in the course of the bird, would not only disorder these feathers, but acting on them, like sails, drive the bird along with irresistible impetuosity. Indeed they “abstain from flight altogether during a storm, which would infallibly throw them to the ground. When flying, they are noisy like starlings; but their common cry is said rather to resemble the croaking of ravens, and is particularly audible when, in somewhat windy weather, the incumbrance of their long feathers brings them into imminent danger of falling. In the Aru islands they are observed to perch on the highest trees. They are taken by the inhabitants with birdlime, snares, or blunt arrows.” When taken alive, they defend themselves with their bills, pecking and biting with great resolution. In size this bird is little larger than a thrush. The general colour is a deep cinnamon, with the exception of the top of the head and the back of the neck, which are yellow; the feathers which encircle the base of the beak as far as the eyes, and cover the whole of the throat, are like velvet, and of a deep emerald green. From each side of the chest, in the male, springs a full plume, from sixteen to eighteen inches long, composed of slender shafts, with fine, loose, delicate webs; in some specimens they are bright yellow at the base, fading gradually into straw colour, in others they are paler; from the tail-coverts spring two slender naked shafts of great length, which taper gradually to a point, and are of a deep cinnamon brown. These elegant appendages are said to be lost during four months of the year; in all probability, as

in the case of the whidah bird and others, they are the decorations of the breeding season, the period in which all birds display their gayest livery.

Amongst others of this splendid group, we may notice the MAGNIFICENT PARADISE BIRD, (*Paradisæa magnifica*.) This richly coloured species is of “an orange



THE MAGNIFICENT PARADISE BIRD.

chestnut colour above, the top of the head and the back being deeper than the rest, the former in some specimens inclining to purple; the tips of the wings and the tail are brown; the throat blackish, with a purple gloss;” the breast and under parts are covered with scale-shaped feathers, of a deep changeable golden green colour, having down the breast a blue reflexion. From the back of the neck springs a double ruff, composed of slender plumes, with slightly dilated extremities. The first series are

short, and orange coloured, with a black spot at the end of each ; the others are longer, and pale yellow. The wing-coverts are orange coloured, with transverse blackish crescents. From the tail-coverts spring two long, slender shafts of golden green. In size this species is somewhat inferior to the Greater Paradise Bird.

The SUPERB PARADISE BIRD (*Par. superba*) is distinguished by the length of the scapular feathers, which form a plume capable of being elevated at pleasure, and by two pointed lappets on each side of the chest. The general colour, with the exception of these lappets, which are the most brilliant burnished steel-green, is black. The size is that of the thrush.

The KING BIRD OF PARADISE (*Par. regia*) is one



THE KING BIRD OF PARADISE.

of the rarest, as it is the smallest of the group. It is about the size of a sparrow, and of an intense purplish

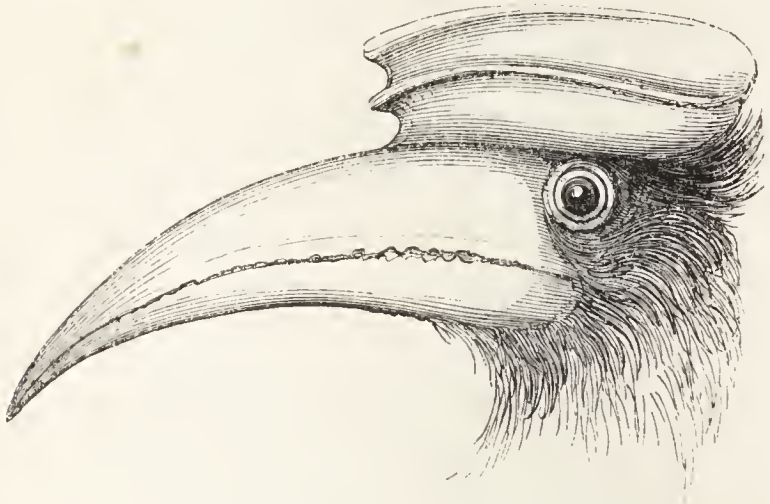
chestnut above, and white beneath. A zone of golden green extends across the chest; from the sides spring two fan-like plumes, consisting of six or seven dusky feathers, with the richest golden green. From the tail-coverts spring two long, slender shafts, each elegantly terminating in a broad emerald web, rising from one side only of the shaft, and disposed into a flat spiral curl. The beak and legs are yellowish brown.

We cannot quit these most graceful of the feathered tribes without glancing for a moment at that Power who gave them all their glory. Some one has observed that the contemplation of a flower would *frighten* atheism from the mind of any rational being; and we grant it. But in these birds, whose exquisite plumes and splendid hues forcibly called to mind that PARADISE which man through sin has forfeited, birds whose beauty seemed alone fitted for such a garden, where nature displayed all the luxuriance of her charms, we have a memento, still more forcible than in the flower, of His hand who has given the lily of the field its colour, and the rose of Sharon its perfume. Birds of Paradise! may your name and your beauties conspire to remind every beholder of God's power and goodness, of man's creation and fall, the spring of "all our woe, with loss of Eden, till one Greater Man restore us," and not of this only, but of a second Paradise, which that Man, even Christ the Messiah, has procured by his merits and sufferings for all believers,—a Paradise where the tree of life shall bloom for ever.

We conclude this rapid outline of the family *Corvidæ* with the Birds of Paradise, and pass on to another which will detain us but little. It is the

FOURTH FAMILY, BUCERIDÆ, or the Hornbills.—Of all birds there are none which present a more extraordinary appearance than the Hornbills, a group confined to India and Africa, and characterized by the enormous development of the beak, the upper mandible of which is furnished with projections, which, in some species, rise to a great height, and occupy a space almost as great as the

bill itself. These excrescences, or projections, increase with age; in very young birds they are small, and the figure undefined, and they gradually acquire their enormous dimensions. The immense beak, thus furnished, seems to be heavier than it really is, (though it is by no means light,) the additional part being internally cellular; its use is as yet far from being satisfactorily ascertained, nor are we aware of the reason of the notches which are always observable along the edges of both mandibles. The following sketch will give our readers some idea of the shape of the beak and its relative size to the head. It is the beak of the Concave Hornbill (*Buceros ca-ratus*.)



The structure of the feet of the Hornbills, and the shortness of the tarsi, indicate the arboreal habits of this singular group. The outer and middle toes are united as far as the third joint, and the under surface of the whole is flat and palm-like, in order to allow a firm hold upon the branch, thereby contributing to the facility of passing with ease from bough to bough. In their food the Hornbills appear to be omnivorous, fruits, eggs, young birds, reptiles, insects, and even carrion, forming their diet. Of the fruit of the ficus Indica, and of the banyan, they are said to be extremely fond. Their manners are as singular as their appearance. Flying into a tree, or from one tree to another, (for they seldom visit the ground,)

they traverse its branches, beginning with the lowest, by springing or leaping from branch to branch, with wonderful alertness; an individual thus engaged will suddenly stop, when he has reached the highest part of the tree, and utter a loud roaring sound, which may be heard at the distance of at least half a mile. This sound is described as resembling that of some ferocious beast, and is very alarming to those who do not know whence it proceeds. The noise thus uttered, which is most probably the call of the bird to its mate, throws a light upon the nature of the hollow protuberance which surmounts the upper mandible, and covers the top of the head; it acts as a sounding-board, increasing the reverberation of the air. Independent of its hollow protuberance, the enormous heavy beak itself has been the ground of many conjectures respecting its peculiar uses; it has been suggested, as a reason for its development, that it perhaps constitutes a necessary weapon of defence against monkeys and other animals which may seek to assail the nest; while some have supposed that it might be employed as an instrument in dragging snakes or lizards from their lurking places, or young birds and eggs from the recesses in the trunks of trees; probably it has a relation to the size and nature of the large fruits which form its main subsistence. The tongue is small. It is remarkable that we meet with this strange developement of the beak again, though not to so disproportionate a degree, nor accompanied by such density of structure, in the toucans, a splendid group of zygodactylous birds peculiar to South America, which we shall notice in their proper place.

Of the Hornbills we have selected as examples the RHINOCEROS HORNBILL (*Buceros rhinoceros*) and the CONCAVE HORNBILL (*Buceros cavatus*) are certainly the most remarkable. In their manners these two birds are said to agree pretty closely. Active and alert, notwithstanding the magnitude of their beaks, they lightly traverse the trees of the forest, which resounds with their roar; the body is muscular and vigorous; the tail large; the wings rounded. The colour is black and white. The

feathers about the cheeks and back of the neck are loose and hair-like. The bill is yellowish, with a tinge of scarlet.

Of the two species before us, the *Buceros cavatus* is the largest. The beak, from the eye to the tip, measures



THE CONCAVE HORNBILL.

one foot ; the distance from the eye to the end of the tail is three feet four inches.

The *Buceros rhinoceros*, from the tip of the beak to the eye, measures about ten inches ; from the eye to the end of the tail, two feet six inches.

Thus concludes this hasty survey of the Conirostral Tribe of the Insectorial Order. One tribe yet remains to

claim a brief attention before we pass to the third order of our system; it is the

TRIBE IV. TENUIROSTRES.

THE tribe Tenuirostres embraces several groups of beautiful and interesting birds, the greatest part of which are peculiar to the warmer regions of the globe, where flowers in perpetual succession afford them nectar and a never failing supply of the smaller insects, upon which they live. They are all distinguished by long slender bills, (whence the name of the tribe,) but vary considerably in other respects, according to the nature of their food and their manners. We shall sketch an outline of the principal families into which the tenuirostral birds are divided, and endeavour to illustrate it by the most prominent and interesting examples; we notice first, the family of *Certhiadae*, or Creepers.

The Creepers are all insect eaters, and their beak is long, slender, and arched; they do not flit from flower to flower in search of the insects that hide among the petals, like the sun-birds; nor chase their prey, like the fly-catchers; nor keep up an untired pursuit, like the swallow; but they creep around the trunks of trees and pry into every crevice, or they pass up the surfaces of rocks or walls, or crumbling ruins, with singular address. Their feet are strong; the toes, especially the hind toe, being furnished with large powerful claws, for the purpose of grasping every little projection, and that with firmness sufficient to bear the weight of the body. To aid in this, the tail in several genera consists of feathers having stiff springy shafts, which project beyond the lateral webs, and serve, by being pressed against any object, as a sort of prop. The British example of this group is that little bird, well known to most of our readers, which is common in gardens and orchards, where it may be observed spirally running up the stems of the trees, like a mouse, stopping every now and then to probe some slit in the bark, or some small crevice, and again proceeding in its

course ; when, having finished one tree, it flits to the next, and begins its ascent as before. The bird we allude to is the COMMON CREEPER, (*Certhia familiaris*,) a little sober-coloured bird, so fearless and unsuspicious as to allow itself to be approached very closely, and all its actions scrutinized, without flitting away. It is one of the most useful of the feathered race which haunt our gardens, insects and their eggs and larvæ constituting its sole food ; and it is in quest of these that it so assiduously traverses every tree. No one thinks of injuring so inoffensive a little creature, whose labours minister to the advantage of man, as well as of itself and its brood. The Creeper breeds early in the spring, the nest being made in the hole of a tree ; the eggs are ash-coloured, with dusky spots. The Creeper has the shafts of the tail-feathers prolonged and stiff, and this character is still more developed in the genus *Dendrocolaptes*, an American group ; it is, however, lost in the genus *Tichodroma*, which includes that elegant bird the WALL-CREEPER, (*Tichodroma phænicoptera*,) a native of the mountain districts of middle and southern Europe. The Wall-Creeper frequents the bold precipitous rocks of the Alps, Apennines, and Pyrenees, and the ruins of castles and other buildings, which grace with hoary majesty the frowning heights of mountain scenery. There, flitting from one projection or crevice to another, but with an action very different to the mouse-like creeping of our little *certhia*, may this elegant bird be seen busy in quest of its insect food ; spiders and their eggs are its greatest favourites. The difference in the actions of this and our British Creeper, at once accounts for the absence of springy shafts in the tail of the southern species. It flits, not creeps, from point to point, securing itself by its claws, which are remarkably large and powerful. The general colour of the Wall-Creeper is a delicate gray, the shoulders and larger coverts being lively crimson, as are also the inner edges of the secondary quill-feathers ; the rest of the quill-feathers are black, as is the tail, with a tip of white ; the throat of the male is black. The beak is long, arched, and pointed ; the wings are rounded.

Our next family is that of the HONEYSUCKERS, (*Nectariniadæ*, VIG.) a group peculiar to the warmer regions of America, with a beak much resembling that of the creepers, being arched, pointed, and compressed; the tongue is bifid; feet moderately strong. The Honey-suckers frequent the luxuriant bowers and gardens which the God of nature has planted, and where a profusion of blossoms “pour out their fragrance to the passing gale.” These richly coloured little birds, busy and active, are perpetually engaged in hopping from flower to flower, exploring the nectary of each, not only with a view to the luscious syrup it contains, but to the small insects also which are there collected; these, indeed, more than the liquid sweets of the nectary, form their diet.

Of this group the BLACK AND BLUE HONEYSUCKER (*Nectarinia cyanea*, ILL.) is an example. This richly coloured bird is a native of Brazil, Cayenne, Hayti, &c. In size it is little larger than our creeper. The top of the head is beryl blue; the rest of the head, the lower part of the back, the upper wing-coverts, the throat, breast, and under parts are pure blue; a black stripe passes through each eye; the back of the neck and upper part of the back are velvet black; the quill-feathers are black on the outsides and brimstone beneath, as is the rest of the inside of the wing; the tail is black. It frequents plantations of sugar-cane, being fond, as it is said, of the juice; but is also observed to search for insects, probing every crevice, and the bottom of the leaves, as well as the nectaries of flowers, with its slender bill.

The SUN-BIRDS (*Cinnyridæ*) constitute our next family. The bill is rather elongated, slender, with its edges denticulated, or fringed with a row of most minute comb-like teeth; the legs are slender; the tongue bifid.

The Sun-Birds belong exclusively to the warm climates of the old world, especially Africa and India, where they almost rival in brilliancy, as they approach in manners, the humming-birds of the new world. Unlike the creepers, which travel mouse-like along the branches, or the honey-

suckers, which hop from flower to flower, grasping the stalk with their feet while they explore the nectary with their beak, these winged gems make no use of the foot as they extract their food, but during the search are poised upon quivering wings which glitter with metallic refulgence; this refulgence is not, however, changeable in different lights, as are the hues of the humming-birds, but continues the same. Insects, such as minute beetles, ants, &c., with honey, constitute their diet. In the Proceedings of the Zoological Society, Part II. p. 98, we find an account of several beautiful species, some of which are new to science, obtained in the Duckhun, India. Of one beautiful species, the *Cinnyris currucaria*, it is stated that “a spider, a *cicada*, and minute coleopterous insects were found in the stomach.” “They also hover before flowers, and suck the honey while on the wing like the *Cinn. lepida*.”

Of another splendid species, new to science, it is observed that the larvæ of flies, a spider, ants, and minute insects were found in the stomach. The lofty trees of the dense woods of the Ghauts are its abode.

Our annexed sketch is of the YELLOW-BELLIED SUN-BIRD (*Cinnyris lepida*;) it is common in India, and



THE YELLOW-BELLIED SUN-BIRD.

may be seen darting from flower to flower, and ever and anon poising itself on quivering wings while inserting its bill into the nectary, or securing the insects which it perceives concealed among the petals. The head is glossy greenish black; the back deep maroon, with a purple gloss on the lower part; shoulders glossy greenish; wings and tail brown; under parts bright yellow; length four inches and a half.

We now enter upon a family which comprehends the smallest and the most brilliant of the feathered race, a family of which all our readers have heard, for none is more celebrated; we allude to the HUMMING-BIRDS, (*Trochilidæ*.) The Humming-Birds are exclusively confined to America and the adjacent islands, being found in no other country; their food consists of insects and the honey of flowers. They may be said to live on the wing, in the powers of which they are probably equalled by no other bird. Their tarsi and feet are extremely minute, but the quill-feathers of their wings are large, firm, strong, elastic, and furnished with shafts of great size, and in some species extraordinarily developed; the tail is wide and spreading. Their plumage is close, often scale-like, and glowing with variable metallic hues, of inimitable brilliancy and splendour. Like meteors glancing by, they dart along, or hover like winged gems, “pendent by subtle magic,” over flowers whose richest tints are now outshone.

If we look at the wings of the Humming-Bird, we at once perceive that these organs influence the general character and habits of the creature; the whole of its organization is modified to make them effective instruments; the breast bone is immense, the pectoral muscles covering it are as large or larger than the rest of the body, and the humerus or arm bone is short; the shape of the wing, when expanded, is narrow, pointed, and often sabre-like. The beak is long and slender; the tongue is long, bifid, or split into two filaments, and tubular. The Humming-Birds are bold and spirited, and defend their nests with great courage; darting at the eyes of intruders, and

easily defeating feathered enemies far exceeding themselves in size. They are divided into several genera, of which we shall take no especial notice; but rather present, as much more instructive to general readers, a few observations, which we take the liberty of extracting from Sir W. Jardine's introduction to their history, illustrative of their manners and range of habitat.

“These beautiful and delicate beings,” he observes, “appear to have excited the admiration of their discoverers, and indeed of every one who has observed them revelling in their native glades, or at rest in the more artificial display of our museums, by the spirited proportions of their form and the dazzling splendour of their plumage,” “Thick without burden; close as fishes' scales.” “The ancient Mexicans used their feathers for superb mantles in the time of Montezuma, and the pictures so much extolled by Cortez were embroidered with their skins.”

The Humming-Birds, as we have already stated, are natives of the new world; and according to our best information, that great archipelago of islands between Florida and the mouths of the Orinoco, with the mainland of the southern continent, until it passes the tropic of Capricorn, literally swarms with them. In the wild and uncultivated parts, they inhabit those forests of magnificent timber overhung with *lianas*, and the superb tribe of *bignonaceæ*, the huge trunks clothed with a rich drapery of parasites, whose blossoms only give way in beauty to the sparkling tints of their airy tenants; but since the cultivation of various parts of the country, they abound in the gardens, and seem to delight in society, becoming familiar and destitute of fear, hovering over one side of a shrub while the fruit or flowers is plucked from that opposite. As we recede from the tropics, on either side, the numbers decrease, though some species are found in Mexico, and others in Peru, which do not appear to exist elsewhere. Thus Mr. Bullock discovered several species at a high elevation, and consequently low temperature, on the lofty table lands of Mexico, and in the woods in the vicinity of the snowy mountains of Orizaba; while Captain

King, in the late survey of the southern coasts, met with numerous members of this diminutive family flying about in a snow-storm near the straits of Magellan, and discovered two species which he considered undescribed in the remote island of Juan Fernandez. Two species only extend far into the northern continent of America: the one, the Ruff-necked Humming-Bird, was discovered by Captain Cook in Nootka Sound, and has been traced by Kotzebue to 61° along the western shores; the other, the Northern Humming-Bird, (ruby throated,) so beautifully described by Wilson, has been obtained from the plains of the Saskachewan, and was found breeding by Mr. Drummond near the sources of the Elk river. It is known to reach as far north as the 57th parallel."

Lively and full of energy, these gilded fairies of the feathered race are almost incessantly on the wing, darting from one object to another, and displaying their gorgeous hues in the beams of the sun. When "performing a lengthened flight, as during migration, they pass through the air in long undulations, raising themselves for some distance, and then falling in a curve. When about to feed, or in search of a favourite flower, they hover stationary, surveying all around, and suddenly dart off to the object." Bullock observes, that "they remain suspended in the air in a space barely sufficient for them to move their wings, and the humming noise proceeds entirely from the surprising velocity with which they perform that motion, by which they will keep their bodies in the air, apparently motionless, for hours together."

From the circumstance of the length of the wings, and the extreme shortness of the tarsi, they never voluntarily settle on the ground, but perch on twigs and branches, where they are observed to amuse themselves by pluming and dressing their burnished feathers, and arranging the apparatus of their wings.

In their disposition they are intrepid, but quarrelsome, and cannot bear the approach of one of their own species near the precincts of their breeding-place. Of one minute but beautiful species, the Mexican Star, Mr. Bullock

states, that, “when attending their young, they attack any bird indiscriminately that approaches the nest. Their motions when under the influence of anger or fear are very violent, and their flight rapid as an arrow; the eye cannot follow them, but the shrill piercing shriek which they utter on the wing may be heard when the bird is invisible. They attack the eyes of the larger birds, and their sharp needle-like bill is a truly formidable weapon in this kind of warfare. Nothing can exceed their fierceness when one of their own species invades their territory during the breeding season: under the influence of jealousy they become perfect furies; their throats swell, their crests, tails, and wings expand; they fight in the air, uttering a shrill noise, till one falls exhausted to the ground.”

The nests of the Humming-Birds are beautifully constructed, both as regards warmth and elaborate finish: they are placed in different situations by different species. The eggs, however, it may be observed, as a general rule, are two in number. Subjoined we give a sketch of the



nest of one these birds, the species not ascertained, from an exquisite specimen now before us. It is entirely com-

posed of the finest silky down, or cotton, of a delicate straw yellow, and most admirably interwoven, so as to form a structure, light, soft, and yet compact. It is suspended at the end of a twig, concealed by the leaves, and must have rocked to and fro with every breath of air.

A few of the most remarkable examples of this interesting group may be selected; and first, that summer visitor to the United States, which Wilson and Audubon have both so admirably described, each having diligently observed it in a state of nature. It is the RUBY-THROATED HUMMING-BIRD, (*Trochilus colubris*.)



THE RUBY THROATED HUMMING-BIRD,

“ When morning dawns, and the bless’d sun again
Lifts his red glories to the eastern main,
Then through our woodbines, wet with glittering dews,
The flower-fed Humming-Bird his round pursues,
Sips with inserted tube the honey’d blooms,
And chirps his gratitude as round he roams;
While richest roses, though in crimson dress’d,
Shrink from the splendour of his gorgeous breast;
What heavenly tints in mingling radiance fly!
Each rapid movement gives a different dye,
Like scales of burnish’d gold they dazzling show,
Now sink to shade, now like a furnace glow.”

WILSON.

“Where,” says Audubon, “is the person who, on seeing this lovely little creature moving on humming winglets through the air, suspended as if by magic in it, flitting from one flower to another with motions as graceful as they are light and airy, pursuing its course over our extensive continent, and yielding new delights wherever it is seen ;—where is the person, I ask of you, kind reader, who, on observing this glittering fragment of the rainbow, would not pause, admire, and instantly turn his mind with reverence toward the Almighty Creator, the wonders of whose hand we at every step discover, and of whose sublime conceptions we every where observe the manifestations in his admirable system of creation? There breathes not such a person ; so kindly have we all been blessed with that intuitive and noble feeling, admiration.

“No sooner has the returning sun again introduced the vernal season, and caused millions of plants to expand their leaves and blossoms to his genial beams, than the little Humming-Bird is seen advancing on fairy wings, carefully visiting every opening flower-cup, and, like a curious florist, removing from each the injurious insects that would otherwise ere long cause their beauteous petals to droop and decay. Poised in the air, it is observed peeping cautiously, and with sparkling eye, into their innermost recesses, while the ethereal motion of its pinions, so rapid and so light, appear to fan and cool the flower without injuring its fragile texture, and produce a delightful murmuring sound well adapted for lulling the insects to repose. This then is the moment for the Humming-Bird to secure them : its long delicate bill enters the cup of the flower, and the protruded double-tubed tongue delicately sensible, and imbued with a glutinous saliva, touches each insect in a succession, and draws it from its lurking-place to be instantly swallowed. All this is done in a moment, and the bird, as it leaves the flower, sips so small a portion of its liquid honey, that the theft, we may suppose, is looked upon with a grateful feeling by the flower, which is thus kindly relieved from the attacks of her destroyers. The prairies, the fields, the orchards, and gardens, nay, the deepest shades of the forest, are

all visited in their turn, and every where the little bird meets with pleasure and food. Its gorgeous throat in beauty and brilliancy baffles all competition. Now it glows with a fiery hue, and again it is changed to the deepest velvety black. The upper parts of its body are of resplendent changing green, and it throws itself through the air with a swiftness and vivacity hardly conceivable. It moves from one flower to another like a gleam of light, upwards, downwards, to the right, and to the left. In this manner it searches the extreme northern portions of our country, following with great precaution the advances of the season, and retreats with equal care at the approach of autumn." . . . "They pass through the air in long undulations," but "the smallness of their size prevents the possibility of following them farther than fifty or sixty yards without great difficulty, even with a good glass." . . . "They do not alight on the ground, but easily settle on twigs and branches, where they move sideways in prettily measured steps, frequently opening and closing their wings, pluming, shaking, and arranging the whole of their apparel with neatness and activity. They are particularly fond of spreading one wing at a time and passing each of their quill-feathers through the bill, in its whole length, when, if the sun is shining, the wing thus plumed is rendered extremely transparent and light. They leave the twig without the least difficulty in an instant, and appear to be possessed of superior powers of vision, making directly towards a martin or a blue-bird, when fifty or sixty yards from them, and reaching them before they are aware of their approach. No bird seems to resist their attacks; but they are sometimes chased by the larger kinds of humble-bees, of which they seldom take the least notice, as their superiority of flight is sufficient to enable them to leave these slow moving insects far behind them in the short space of a minute."

The Humming-Bird usually arrives in Pennsylvania about the 25th of April, but in Louisiana it has been observed as early as the 10th of March. The nest is usually attached to the upper side of some horizontal

branch ; it is about an inch in diameter, and as much in depth, and is formed externally of a species of gray lichen, the portions of which are said to be glued together by the saliva of the bird ; within this outer coat is a padding of the cotton or down of plants, smoothly arranged, and lined with a yet finer layer of silky fibres ; the eggs are two, and of a transparent whiteness. The young ones take their food by inserting their bills into the mouths of the parent-birds, who are assiduous in their support. The ruby throat is not gained by the young till the succeeding spring.

Though the blossoms of trees and shrubs of every kind attract the Humming-Bird, tubular flowers are his greatest favourites ; not so much perhaps for the sake of the nectar, as of the insects which crowd the recess of the blossom to feed upon its sweets. That insects, and those too of the coleopterous order, constitute a great part of the food of these birds has been proved by dissection ; and Wilson says, “ I have seen the Humming-Bird for half an hour at a time darting at those little groups of insects that dance in the air in a fine summer evening, retiring to an adjoining twig to rest, and renewing the attack with a dexterity that sets all our other fly-catchers at defiance. I have opened from time to time great numbers of these birds ; have examined the contents of the stomach with suitable glasses, and in three cases out of four have found these to consist of broken fragments of insects : in many subjects, entire insects of the coleopterous order, (beetles,) but very small, were found unbroken.”

The female differs from her more brilliant mate in wanting the ruby hue of the throat, which, with the rest of the under surface, is white. Length three inches and a half, of which the bill is three-fourths of an inch ; extent of wings four inches and a quarter.

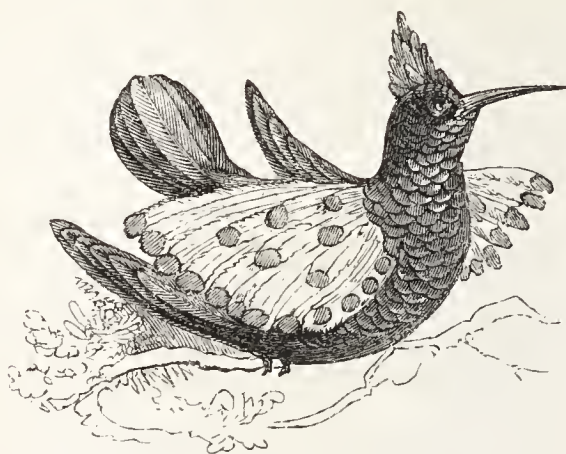
Some of the Humming-Birds are not only remarkable for the brilliancy of their colours, but also for the singular tufts and plumes with which they are ornamented. Such,

for instance, is the character of the TUFTED-NECKED HUMMING-BIRD, (*Trochilus ornatus*.) This beautiful little creature is a native of Cayenne, Guiana, and Brazil, preferring “dry arid plains, clothed with a scanty and bushy vegetation.” Its head is ornamented with a crest of red feathers, and from the sides of the neck proceeds a tuft composed of twelve or fourteen feathers of the same colour, ending each in a broad tip of clear shining green. The chest is clothed with scaly feathers of a bright emerald green, paler at its edges. The upper parts are golden green, the lower greenish brown; the tail is large, having the centre feathers green, the others red, with a purple gloss. The female wants both crest and throat plumes, but in the metallic richness of her tints is hardly inferior to her mate.

The DOUBLE-CRESTED HUMMING-BIRD (*Trochilus cornutus*) is also another example. This splendid species was discovered by Prince Maximilian de Wied-Neuwied: “it inhabits the exalted Campos-Geraes of Brazil, near the sources of the river Don Francisco.” In length it is nearly four inches; from each side of the forehead rises a flattened tuft composed of six feathers, and directed forwards. “The colours of these tufts or horns baffle description, and an idea can only be conveyed by likening them to some familiar object, such as the bright and changing hues of steel or other metals, or the sparkling tints of precious stones. The centre of the forehead between the tufts is covered with scaly feathers of brilliant green and blue reflections; a gorget of deep and rich purple composed of lengthened feathers reaches from behind the eyes upon the breast.” The chest and under surface are white; upper parts green, tail wedge-shaped, the two middle feathers being brown, the rest white. The female wants the head-dress of the male.

But of all these tufted beauties the palm of splendid elegance must be given to the *Trochilus Gouldii*, the account of which is as follows: “The native district of

this splendid species is unknown. In size it is similar to the tufted-necked Humming-Bird: the forehead, throat, and upper part of the breast are of the most brilliant green, the feathers of a scaly form; from the crown



TROCHILUS GOULDII.

springs a crest of bright chestnut feathers, of a lengthened form, and capable of being raised at pleasure; the back and upper parts are golden green, crossed upon the rump with a whitish band; the wings and tail are brownish purple, the latter having the centre feathers tinged with green. The neck tufts are of the most splendid kind, and have a chaste but brilliant effect; they are composed of narrow feathers of a snowy whiteness, the tips of each having a round spot of bright emerald green, surrounded with a dark border.” The general shape of these tufts is that of a butterfly’s wing.

Some Humming-Birds, again, have the tail-feathers developed in a most extraordinary manner, and glowing with the richest hues; such, for example, is the BARTAILED HUMMING-BIRD, (*Trochilus sparganurus*,) a native of Brazil, and a large species, distinguished at once by the shape of its tail, which is forked to the base, and thus consists of two diverging portions, each containing five feathers, graduating one beyond another at nearly equal

distances. Their colour is of the richest flame, or bright orange red, with a dazzling metallic burnish, each having



BAR-TAILED HUMMING-BIRD.

a broad spot of black at the tip, so that when the tail is closed, it appears as if barred at regular intervals. The upper surface is fine golden green, except the rump, which is dull red. The under surface is bright emerald green.

Another remarkable species is the ROUGH-LEGGED RACKET-TAILED HUMMING-BIRD, distinguished like the former by a forked tail, though not to so great an extent. The most remarkable feature, however, consists in the two outer feathers, which not only extend far beyond the rest, but after narrowing to the shaft, expand suddenly, so as to suggest the figure of a racket, or trap-bat. Its colour is greenish black; the upper parts are of a golden green, a white band passing across the rump; a gorget of emerald green occupies the throat and chest; the

under surface is dull green ; the tarsi are plumed, and of a pure white.



ROUGH-LEGGED RACKET-TAILED HUMMING-BIRD.

It has been already stated that some of the Humming-Birds are remarkable for the developement of the wings, and for the strength and breadth of the shafts of the principal quill-feathers, thus—



These birds have been known under the denomination of “Sickle-winged,” or “Sabre-winged,” and form the genus *Campylopterus* of Swainson.

Of this group the BLUE-THROATED SABRE-WING, (*Trochilus latipennis*, LIN. *Campylopterus latipennis*, Sw.) is a good example. It is a native of Tobago, frequenting woods along streams and on rivulets, and also low marshy grounds, where wild plantain bushes luxuriate in profusion. The evening is said to be the time in which it is most active, numbers being then observed on the

wing, playing round their favourite blossoms, and exhibiting their rapid powers of flight. In length this species is five inches and a quarter. The general plumage is golden



BLUE-THROATED SABRE-WING.

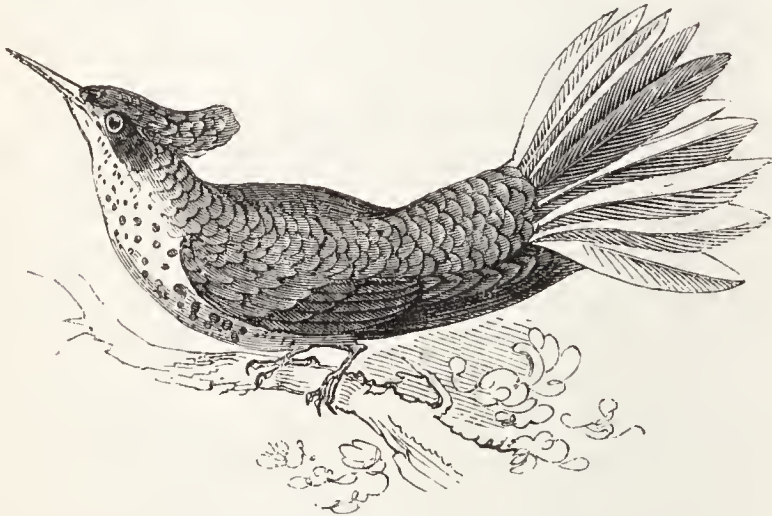
green, the throat being clear violet blue, passing into steel blue ; the wings are purplish black ; the tail-feathers, which are very broad, are ten in number, the two middle pair being glossy black, the remainder white.

With the exception of the lovely “ Ruby-throated,” every Humming-Bird we have yet noticed is a native of the intertropical regions of America. We shall conclude our notice of these birds by introducing two or three to the attention of our readers, which display their dazzling tints beneath a more inclement sky, and in a climate where no one would suspect their presence, bring up their hardy brood. True it is, they are migratory, and leave the winter far behind them, fleeing at its approach on wings swift as the wind. Of these we first introduce the NOOTKA HUMMING-BIRD, (*Trochilus rufus*,) discovered by the celebrated navigator Captain Cook, who met with it on the coast of Nootka Sound, and observes, that they “ perhaps inhabit more to the southward, and

spread northward as the season advances ; because we saw none at first ; though near the time of our departure the natives brought them to the ships in great numbers." Top of the head glossy golden green ; upper surface rufous, with a coppery greenish gloss on the wing-coverts ; on the throat there is a gorget of scaly feathers of a deep ruby colour, changing in every light ; under parts whitish.

The next two species are natives of the remote island of Juan Fernandez, where they were discovered by Capt. King, (who, as we have already stated, had observed Humming-Birds flying in a snow storm near the Straits of Magellan.) The first of these island species is the *Trochilus Fernandensis*, of a ferruginous red, the top of the head being of a rich and brilliant scarlet ; the quill-feathers brown. Length five inches. See Proceed. Zool. Society, vol. i. p. 30.

The second is STOKES'S HUMMING-BIRD, (*Trochilus Stokesii*, KING.) certainly one of the most beautiful of



STOKES'S HUMMING-BIRD.

its family. The head and whole of the back are covered with scaly feathers, those on the head being brilliant blue,

changing to violet; those on the back bright emerald green, which is the colour of the two middle tail-feathers and the outer webs of the rest, the inner webs being white. The cheeks are purplish green, with small pink spots; the under parts are pure white, with round spots of rich, deep, golden green, producing a most lovely effect. Quill-feathers dusky. Length four inches and a half. (See Proceed. Zool. Society, vol. i. p. 30.)

Here must be closed this sketch, or rather rapid glance at this interesting group, filled up by a numerous assemblage of the most brilliant and animated of the feathered race; upwards of a hundred species are already known, and there are doubtless many which yet remain to reward the researches of the scientific traveller. After having directed the reader to these winged brilliants, all life and energy, whose every feather speaks more of the Almighty's power than words can ever convey, will it be deemed out of place to turn for a moment to the contemplation of His glories, whose throne is encircled by suns and moons and stars, worlds which He has created, and which show forth His praise? The weak-minded trifler may sneer, the presumptuous infidel may mock, and the fool may say in his heart, There is no God, but the truly philosophic mind will indeed delight to trace his Maker's name in every form of beauty, in every glowing tint, happy if he can call that God his Father and his Friend. Natural objects of uncommon elegance, and rich in the tints with which they are adorned, from their contrast with others that are more common or less striking, appeal with double force to our senses, and by the association of ideas call to mind, involuntarily on our part, the Great Creator whose wisdom and power and goodness are exercised on their being. But a christian thus reminded of his God feels an emotion "the world knoweth not of." He feels that this God is bound to him by a covenant of mercy and truth, through the one great sacrifice of Calvary, where his sins were washed away. Thus nature, to the christian, speaks not only of a Maker, but of a God who

has made known his law to his people, and a way of pardon and acceptance, which nature could not show, and of brighter glories and more radiant hues than nature, lovely as she is, can offer to his contemplation.

The survey of the succeeding groups of the present tribe of *Tenuirostres*, will be very cursory ; as our object is to sketch a graphic outline, (which the reader's future studies may fill up or improve,) in elucidation of an arrangement or system as well calculated as any we know to set ornithology in a clear and intelligible light.

The Honey-Eaters (*Meliphagidæ*) constitute a tribe far less rich in the tints of their plumage than either the sunbirds or the humming-birds ; although, like them, they search the nectaries of flowers for food. In manners they resemble the honey-suckers (*Nectariniadæ*) of South America, hopping from twig to twig, and not poisoning themselves on the wing. The beak is long, slender, compressed, and generally bent ; but the distinguishing character consists in the slit-like form of the nostrils, placed in a longitudinal cleft at the base of the beak. The tongue is furnished at its tip with a pencil of slender filaments, which admirably adapts it as an instrument for cleaning the nectaries, not only of honey, but of insects also. They are all natives of Australia and the adjacent islands in the South Pacific, where a constant succession of bloom keeps up for them an uninterrupted feast.

The NEW HOLLAND HONEY-EATER (*Meliphaga Novæ Hollandiæ*) is an example, as is also the WATTLED HONEY-EATER, (*Meliphaga carunculata*,) a bold and noisy bird, which is rather common near the coasts of New Holland ; it is said to be very quarrelsome, attacking and driving away birds much superior in size. Its chief food is insects, but it is likewise fond of sucking insects from the different kinds of *Banksia*. It has been known that two or three of them will drive off a flock of

blue bellied parrots, a tribe of birds with which they are ever at war. This is a large species, measuring fifteen inches in length. The general colour on the upper surface is dusky brown; the tail wedge-shaped, and tipped with white; the lower part of the chest fine yellow; from each cheek, just behind the lower bill, there hangs down an orange-coloured wattle, to the extent of an inch or more, which gives the bird a singular aspect. In the female this appendage is wanting.

The **SLENDER-BILLED HONEY-EATER** (*Mel. tenuirostris*) belongs also to this group. It is a beautiful little bird, whose life is passed among the shrubs and flowers, where it finds food and shelter. In length it is

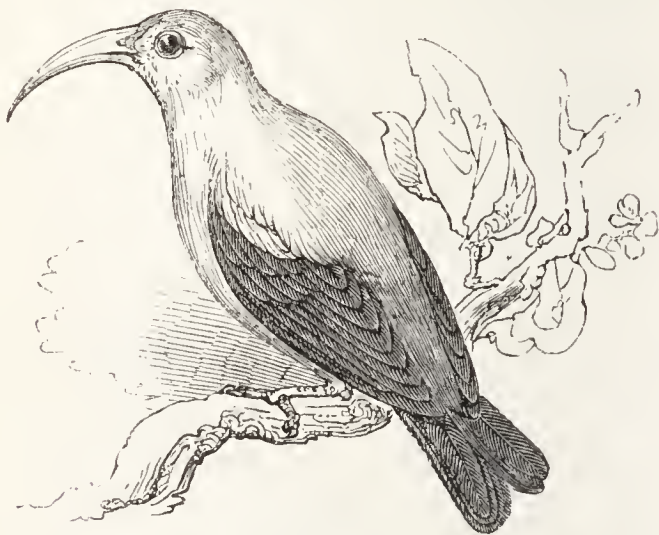


THE SLENDER-BILLED HONEY-EATER.

about six inches; the bill is arched and slender; the crown of the head is black; the top of the back brown, passing off into slate gray. On the throat is a brown patch, deepening into a crescent of black, and surrounded

with a broad belt of white, edged abruptly with black; under surface, light chestnut; quills and tail black. The feathers of the back of the neck and upper part of the back are full and silky.

The HOOK-BILLED CREEPER (*Melithreptus vestarius*, VIEILL.) seems also to belong to this group. This



THE HOOK-BILLED CREEPER.

beautiful little bird furnishes the scarlet feathers with which the natives of the Sandwich Isles adorn their cloaks and mantles. Articles of dress and helmets covered with these feathers, and which were brought home by Captain Cook, are in the British Museum; and have been, we doubt not, seen and admired by many of our intelligent readers.

Latham, speaking of this bird, which he observes is confined to the isles alluded to, adds, that “it was first met by our people in that of Atooi; it is gregarious, and caught in snares by the natives for the sake of the red feathers, with which they make many of their feathered dresses, helmets, and the like.” These birds, though not seen alive by Captain Cook, during his stay at these islands, were “brought in by the natives, fresh killed, to be purchased for a trifle.” They are said to feed on the

nectar of flowers, into which they thrust their long and ciliated (brush-tipped) tongue, whereby, in the manner of the humming-bird, they are able to extract the honey readily. The general name, *Eee-we*; but they are called at Atooi by that of *Heoro-taire*.

Length, six inches; bill, long and hooked, and of a pale yellow, as are the tarsi also. The wings and tail are black, a few of the wing-coverts next the body being tipped with white; the whole of the body, rich scarlet.

The last group or family of the tenuirostral birds is that of the *Promeropidæ*, containing the Hoopoe and the Promerops, and several species forming the genus *Epimachus*, which have by the early writers been placed with the birds of paradise, and are inhabitants of the same country; but of whose manners we know nothing.

The various species of Promerops are said to live on nectar and insects; their bill is slender, long, and arched; the tail is large and long; the tongue is bifid and capable of being extended, so as to penetrate the nectary. They are natives of Africa, and have been observed to fly in flocks, making, when disturbed, a loud chattering. The red-billed Promerops is one of the best known examples.

The Hoopoes (*Upupa*) are distinguished by a double range of long feathers on the crown of the head, forming a beautiful fan-like crest, capable of being either depressed or elevated. The beak is long and arched; the tail square.

Of this genus, three species are all that are as yet recognised, and of these one is a British bird, though not a resident during the whole of the year, nor yet very regular in its periodical visits.

The HOOPOE (*Upupa epops*) is widely distributed; it is found over the whole of Africa, India, and China, and visits the south of Europe annually in considerable abundance, spreading also, though more sparingly, far to the north, and with less regularity. Instances of its having bred in England are not unfrequent, and doubtless

more would occur, did not its appearance call up incessant attempts at its destruction; few, indeed, escape the fatal shot. Its actions are graceful and animated, and it is incessantly lowering and expanding its crest. White



THE HOOPOE.

says, in his *Natural History of Selborne*, letter xi. “The most unusual birds I ever observed in these parts were a pair of Hoopoes, which came several years ago in the summer, and frequented an ornamented piece of ground which joins to my garden for some weeks. They used to march about in a stately manner, feeding in the walks many times in the day, and seemed disposed to breed in my outlet, but were frightened and persecuted by idle boys, who would never let them be at rest.”

Their food consists of beetles and their larvæ, worms, snails, &c.; the neighbourhood of moist meadows or marshy places, where such abound, being their favourite

resort. They build in hollow trees, among old ruins, or in the fissures of rocks; in short, they are not solicitous about the locality. The eggs are gray, clouded with dusky, and five in number.

The general colour of the plumage is beautiful fawn; the wings and lower part of the back are broadly barred with black and white. The tail consists of ten feathers, and is black, crossed at the base with a crescent of white. The feathers of the crest are tipped with black. Beak and legs black. Length twelve inches.

Here may be closed the tribe *Tenuirostres*, and with it the order *Insessores*.

ORDER III.

ZYGODACTYLI, OR SCANSORES.

THE YOKE-FOOTED ORDER.

IT has already been observed that the present order forms a tribe of the *Insessores*, according to the system of several eminent ornithologists; and also the reasons which induce us to consider it, with Cuvier, as having claims to the rank of a separate class, equal to those of the *Raptores*, have been noticed. Though the groups composing the *Zygodactylous* order differ considerably among each other in food and habits, still they agree in having a certain character of foot, which fits them for the trees, among which they pass their existence, grasping and clinging to the branches upon which they do not merely perch, but which they fairly grasp; and that too with an equal pressure either way, in consequence of the toes being equally divided, there being two before and two behind. The power of grasping and holding, thus accruing, is in many groups, the parrots for example, very great, and is moreover connected with habits of climbing from one bough to another, the mode in which they traverse the trees in search of food. Nay, the parrots even hold their food with one foot, in order to feed upon, while they cling to the branch with the other. In consequence of this remarkable faculty, the whole order has been termed Scansores, or climbers; a name however by no means applicable to every group, but to two or three alone, and which therefore, as not universally applicable, can scarcely be retained.

As it regards food, the birds of this order vary considerably, some living entirely on insects, others on fruits, and many on both united.

The first group, or family to be noticed, is that of the

Cuckoos, (*Cuculidæ*,) a family widely distributed through every quarter of the globe, and divided into several genera, each distinguished by certain well defined characters. The True Cuckoos, (*Cuculus*,) which are to be taken as types, or exemplifications of the group, have the beak of moderate strength, compressed, and slightly arched, the gape wide; the tarsi are short, the toes small, the wings long, and the tail more or less wedge-shaped; they are all migratory. Of these, one is a British visitant, and the welcome herald of spring, whose voice we all hear with pleasure in our opening groves and woodlands.

O blithe new-comer! I have heard,
I hear thee, and rejoice;
O, Cuckoo! shall I call thee bird,
Or but a wandering voice?

While I am lying on the grass,
Thy two-fold shout I hear,
That seems to fill the whole air's space,
As loud far off as near.

Though babbling only to the vale
Of sunshine and of flowers,
Thou bringest unto me a tale
Of visionary hours.

Thrice welcome, darling of the spring!
E'en yet thou art to me
No bird:—but an invisible thing,
A voice—a mystery.

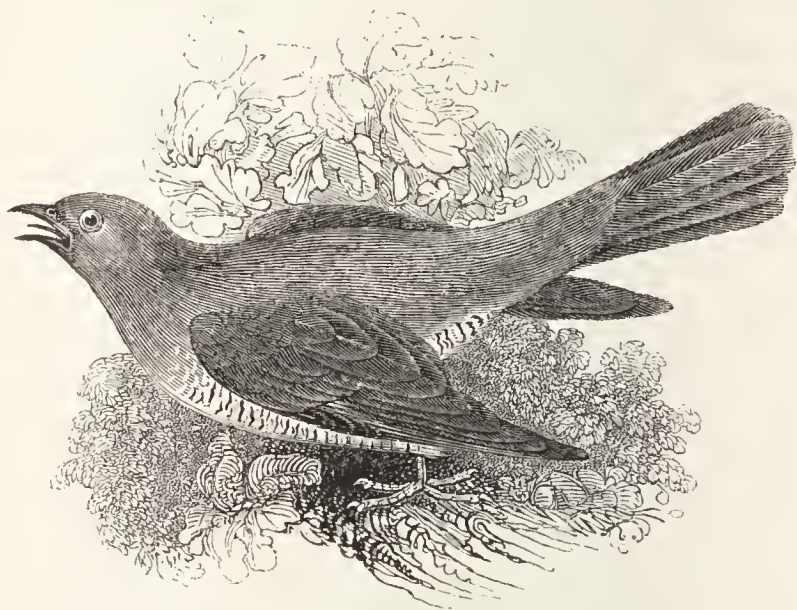
The same whom in my schoolboy days
I listened to:—that cry
Which made me look a thousand ways,
In bush, and tree, and sky.

To seek thee, often did I rove
Through woods and on the green,
And thou wert still a hope, a love,
Still long'd for, never seen.

And I can listen to thee yet,
Can lie upon the plain
And listen, till I do beget
That golden time again.

WORDSWORTH.

The CUCKOO (*Cuculus canorus*,) visits our shores about the middle of April, and disperses itself singly or in pairs, over the country, especially where luxuriant and well wooded districts offer food and concealment. Concealed among the green foliage, it makes the wood-



THE CUCKOO.

lands echo with its clear and well-known voice. Its food consists of caterpillars, beetles, flies, and other insects, which it sometimes takes on the wing. White observes, "I saw several Cuckoos skimming over a large pond, and found, after some observation, that they were feeding on the *libellula*, or dragon-flies, some of which they caught as they settled on the weeds, and some as they were on the wing."

The most remarkable circumstance connected with the history of this bird, is the well ascertained fact of its depositing its eggs in the nests of other birds, leaving to them the rearing and care of its own offspring. The Cuckoo does not make an indiscriminate selection of a nest in which to lay her egg, but chooses the nest of an insectivorous bird, in order that the young Cuckoo may be supplied with the only food upon which it can subsist ;

in general, one egg only is deposited in a nest, and the nest is usually that of a small bird, as for example, the hedge-sparrow, the pipit, the wagtail, or the garden warbler. These facts have been noticed by the earliest writers on Natural History, Aristotle and Pliny, who also observed the circumstance of the absence of the true offspring of the foster birds, the former supposing the old Cuckoo to have devoured the eggs she found in the nest previously to depositing her own, the latter asserting that the young Cuckoo voraciously devoured its fellow nestlings, and at last, with unparalleled ingratitude, devoured its foster-parents also; an error repeated by succeeding writers, and even by Linnæus. The young Cuckoo does indeed reign sole in the nest, and though it does not eat its little companions, it usurps dominion in a way quite as unnatural. In the Philos. Trans. for 1788, part ii. there is a very interesting paper on this subject by Dr. Jenner, to whom the world owes the discovery of vaccination, as a preventive against one of the scourges of mankind. "On the 18th of June," says he, "I examined the nest of a hedge-sparrow, (*Accentor modularis*,) which then contained a Cuckoo and three hedge-sparrow's eggs. On inspecting it the day following, the bird had hatched, but the nest then contained only a young Cuckoo and one hedge-sparrow. The nest was placed so near the extremity of a hedge that I could distinctly see what was going forward in it; and to my great astonishment, I saw the young Cuckoo, though so lately hatched, in the act of turning out the young hedge-sparrow. The mode of accomplishing this was very curious: the little animal, with the assistance of its rump and wings, contrived to get the bird upon its back, and making a lodgment for its burden by elevating its elbows, clambered backwards with it, up the side of the nest, till it reached the top, where, resting for a moment, it threw off its load with a jerk, and quite disengaged it from the nest. It remained in this situation for a short time, feeling about with the extremities of its wings, as if to be convinced whether the business was properly executed, and then dropped into the nest again. With these, the extremities of its

wings, I have often seen it examine, as it were, an egg and nestling before it began its operations; and the nice sensibilities which these parts seem to possess, seemed sufficiently to compensate the want of sight, which as yet it was destitute of. I afterwards put in an egg, and this by a similar process, was conveyed to the edge of the nest and thrown out. These experiments I have since repeated several times in different nests, and have always found the young Cuckoo disposed to act in the same manner. In climbing up the nest, it sometimes drops its burden, and thus is foiled in its endeavours; but after a little respite the work is resumed, and goes on almost incessantly till it is effected. The singularity of its shape is well adapted to these purposes; far different from other newly hatched birds, its back, from the shoulders downwards, is very broad, with a considerable depression in the middle. This depression seems formed by nature for the design of giving a more secure lodgment to the egg of the hedge-sparrow or its young one, when the young Cuckoo is employed in removing either of them from the nest. When it is about twelve days old, this cavity is quite filled up, and then the back assumes the shape of nestling birds in general.”.....“It sometimes happens that two Cuckoo’s eggs are deposited in the same nest, and then the young produced from one of them must inevitably perish. Two Cuckoo’s, and one hedge-sparrow’s egg were hatched in the same nest, and one hedge-sparrow’s egg remained unhatched. In a few hours afterwards a contest began between the Cuckoos for the possession of the nest, which continued undetermined till the next afternoon, when one of them, which was somewhat superior in size, turned out the other, together with the young hedge-sparrow and the unhatched egg. The combatants alternately appeared to have the advantage as each carried the other several times to the top of the nest, and then sunk down again oppressed by the weight of the burden; till at length, after various efforts, the strongest prevailed, and was afterwards brought up by the hedge-sparrow.”

These statements have been since abundantly confirmed by the observations of others, and among them by Colo-

nel Montagu, who made several experiments, the results of which were precisely similar to those related by Dr. Jenner; and Mr. Blackwall, in the *Manchester Memoirs* for 1824, p. 463, adds also his testimony. "On the 30th of June I took a young Cuckoo that was hatched in a titlark's nest on the 28th, and this nestling, while in my possession, turned both young birds and eggs out of its nest, in which I had placed them for the purpose, and gave me an opportunity of contemplating at leisure the whole process of this astonishing proceeding, so minutely and accurately described by Dr. Jenner. I observed that this bird, though so young, threw itself backwards with considerable force when any thing touched it unexpectedly."

The motive which impels the Cuckoo thus to transfer her eggs into the nests of other birds, and leave her young to be brought up by them to the sacrifice of their own brood, is a mystery beyond our elucidation. Our British visitor is not however singular in this respect, as most, if not all the True Cuckoos act in the same manner, and one or two other birds besides. It is yet a query in what manner the egg is transferred to another's nest, for the Cuckoo is a large bird, and the nests are those of small birds; besides Cuckoo's eggs have been found in the domed nests of the wren, which have only an aperture just capable of the diminutive owner's entrance and exit, as well as in other nests upon which it is impossible for the Cuckoo to have sat. Le Vaillant ascertained that the Gilded Cuckoo of South Africa, conveyed her egg in her bill, in order to drop it into a fit and chosen nest, and possibly such may be the case with our British species.

The Cuckoo leaves our shores in the early part of July; and for some weeks before the period of migration, loses the mellow clearness of his voice, which breaks, or degenerates into a harsh monosyllable. The young birds differ considerably from the adult in their plumage, being rufous brown, barred universally with black.

The adult birds are of a beautiful ash colour above, the breast and under surface being white, elegantly crossed

with black undulating lines. The two middle tail feathers black, tipped with white, the others marked with white spots on each side of the shafts. Tarsi short and yellow; bill black; length fourteen inches.

The egg of the Cuckoo is very small, barely exceeding that of a common house-sparrow, and not much unlike it in its markings; but more streaked with black, and dotted with reddish spots. The number laid in a season is uncertain. The only mention of the Cuckoo in the Scriptures is in Leviticus and Deuteronomy, where it is mentioned as forbidden food. Dr. A. Clark considers, however, that the sea-mew is meant by the Hebrew word thus translated.

We have already alluded to the GILDED CUCKOO, (*Cuculus auratus*), and with reference to our British species, a few observations on its manners, as related by Vaillant, may not be uninteresting. This beautiful bird inhabits the country above the Cape of Good Hope, being extremely common in Caffraria and Namaqua-land; the male utters a cry similar to the word *Di-di-di-dric*, whence has arisen one of its names. Vaillant states that his servant, Klaas, shot two hundred and ten males, one hundred and thirty females, and one hundred and three young ones, in all four hundred and forty-three, and that numbers more might easily have been procured, adding, “besides which, we found eighty-three of their eggs in as many nests, belonging to insectivorous birds.”..... “Although this bird (the *didric*) be so common, if not in the immediate environs, yet about one hundred leagues from Cape Town, it was scarcely known in Europe before my voyages, and in France there was only one mutilated and badly preserved specimen of it to be seen in the Royal Museum at Paris. I myself brought over one hundred and fifty males and females, as well as young ones, which are now exhibited in the chief cabinets of Europe. To this beautiful species also I am indebted for my chief knowledge of the Cuckoo family. From the facility I had of leisurely and successfully observing its manners, I always entertained the hope that I should

one day surprise a female *didric* in the act of depositing its egg in the nest of another bird; but having been disappointed in this respect, I began to imagine that my ignorance on this point would never be removed, when one day having killed a female of this species, and wishing to introduce into its throat a plug of hemp, according to my custom, after bringing down a bird, in order to prevent the blood from staining its plumage, I was not a little surprised on opening its bill for this purpose, to find in its throat an entire egg, which I knew immediately from its form, size, and beautiful whiteness to belong to the *didric*. Delighted at length after so many useless efforts, at having obtained a confirmation of my suspicions, I loudly called my faithful Klaas, who was only a few paces distant from me, to whom I imparted my discovery with much pleasure, as he had used his best exertions to second my views. Klaas, on seeing the egg in the bird's gullet, told me, that after killing female Cuckoos, he had frequently observed a newly broken egg lying upon the ground near where they had fallen, which he supposed they had dropped in their fall, being at that moment ready to lay. I recollect very well that when this good Hottentot brought me the fruits of his sports, he frequently remarked, as he pointed to the Cuckoo, 'This one laid her egg as she fell from the tree.' Although I was convinced from this circumstance, that the female Cuckoo deposits her egg in the nests of other birds, by conveying it in her beak, I was desirous to collect what facts I could on the subject. Klaas and I therefore began to shoot as many Cuckoos as we could meet with, which accounts for the great number of this species we procured. However, among all the specimens there occurred only one instance similar to that which I have just mentioned, namely, that of a second female, which was transporting her egg in her mouth like the former."

In length the Gilded Cuckoo is about seven inches; the plumage above is rich glossy green with golden reflexions; the head is marked with five small stripes of white, with which the secondary quills and many of the

wing-coverts are tipped ; under parts white ; tarsi yellow. In the female, the golden green is changed for a reddish gold colour, and the stripes on the head are more obscurely marked. Besides the present species, Africa produces several others, some of which are even more rich and intense in the metallic hues of their plumage.

The singular conduct of the Cuckoo in depositing its eggs in the nests of other birds, appears to be common to all the genuine Cuckoos, that is, to all those which truly constitute the genus *Cuculus*, but within the precincts of that group it seems to be limited, at least as regards the present family ; for in the genus *Coccyzus*, closely allied to the former, we find the different species constructing their own nests and rearing their own brood.

As an example, we select the YELLOW-BILLED CUCKOO of the United States of America, (*Coccyzus Americanus*, BONAPARTE.) Among the thickest foliage of the woods, during May or June, the voice of this shy and solitary bird may be often heard, resounding in guttural accents through the glade, and not unlike those of the young bullfrog. These accents consist of a repetition of the word *cow*, eight or ten times, with increasing rapidity ; hence its common name of *Cow-bird*, in almost every part of the Union. Wilson states that this species “arrives in Pennsylvania, from the south, about the 22nd of April, and spreads over the country as far at least as Lake Ontario ; is numerous in the Chickasaw and Chactaw nations, and also breeds in the upper parts of Georgia, preferring in all these places, the borders of solitary swamps, and apple orchards. It leaves us, on its return southwards, about the middle of September.”

They pair and build in May ; “the nest is usually fixed among the horizontal branches of an apple tree ; sometimes in a solitary thorn, crab, or cedar, in some retired part of the woods. It is constructed with little art, and scarcely any concavity, of small sticks and twigs, intermixed with green weeds, and blossoms of the common maple. On this almost flat bed, the eggs, usually three or four in number, are placed ; these are of a uniform

greenish blue colour, and of a size proportionable to that of the bird. While the female is sitting, the male is generally not far distant, and gives the alarm, by his notes, when any person is approaching. The female sits so close that you may almost reach her with your hand, and then she precipitates herself to the ground, feigning lameness, to draw you away from the spot, fluttering, trailing her wings, and tumbling over in the manner of a woodcock, partridge, and many other birds. Both parents unite in providing food for the young. This consists for the most part of caterpillars, particularly such as infest apple trees. The same insects constitute the chief part of their own sustenance. They are accused, and with some justice, of sucking the eggs of other birds, like the crow, the blue jay, and other pillagers. They also occasionally eat various kinds of berries. But from the circumstance of their destroying such numbers of very noxious larvæ, they prove themselves the friends of the farmer, and are highly deserving of his protection." On the ground the *cow-bird* is very awkward, owing to the shortness of its tarsi; hence it seldom alights, except occasionally to pick up a tempting snail or insect; among the branches it is however active, and its flight is rapid, silent, and arrowlike.

The bird, as characteristic of the genus, is long, compressed, slightly arched, acute, and slender. The tarsi are short; the claws are arched and slender. Tail long and graduated; wings ample. The upper mandible is brown at the tip, but its base, and the whole of the lower mandible are yellow. General colour of the upper surface light greenish brown. Tail feathers, except the two middle, black, the outer ones on each side being tipped with white. Under parts grayish white. Length twelve inches and a half.

To the family of *Cuculidæ*, belongs, amongst others, that interesting bird, the Honey-guide of South Africa, belonging to the genus *Indicator*. This genus is characterized by the beak being short, high, and almost conical, like that of a sparrow; and by the form of the

tail, which consists of twelve feathers, and is at the same time both a little graduated and a little forked. The skin is remarkably tough, so as to be proof against the stings of bees, insects which the birds of this genus harass incessantly; yet it is said they often lose their lives, being wounded by the stings of numbers in their eyes.

The HONEY-GUIDE (*Indicator Vaillantii*,) is a sober coloured bird, of moderate size, being barely seven inches in length; the general tone of colouring on the upper parts is rusty gray; of the under surface, dirty white. Its food is said to consist of honey, which it obtains by robbing the natural hives of wild bees, situated in hollow trees, or the clefts of rocks. We should be much inclined to think that the bees themselves formed no little portion of its sustenance. Le Vaillant however states, that on opening the stomach of one, nothing was found but wax and honey, not the vestige of any insect; and that the skin was so thick as scarcely to admit of being pierced with a pin. Morning and evening are the times in which this bird begins the search for its luscious food, a food equally coveted by the Hottentot; who avails himself of the instinct of the Honey-guide, in order to obtain a share of the treasure. Directed by its shrill cry, the hunter follows the bird, endeavouring always to keep it in his sight, and tracks its course wherever it may lead. Having discovered the stores, the bird redoubles its cries, flutters around, and seems to invite the hunter's aid, who presently destroys the swarm, and secures the honey, leaving his guide a portion for its pains. On account of its services, this bird is held in great esteem and veneration by the Hottentots, who dislike its being killed, and even resent its destruction. "Dr. Sparrman," says Latham, "assured me that he has several times been at the taking of wild bees in this manner, but could only obtain two female birds, from which the description was taken." The male and female are said to be seldom far apart; they breed, according to most accounts, in the holes of trees.

Besides the genera already alluded to, the present family

contains several others, departing in many points from the typical form; among them we may mention the COUCALS, or Lark-heeled Cuckoos, (*Centropus*, ILL.) characterized by a strong and slightly curved beak, and especially by the claw of the inner of the two hind toes, being long, straight, and pointed like the hind claw of the lark. They appear to be solitary and recluse in their habits; feeding on insects, larvæ, and even small reptiles, and breeding in the holes of trees. They are peculiar to the hotter portions of the Old World.

Of these birds we may take the EGYPTIAN COUCAL (*Centropus Ægyptius*) as an example. In length it is about fifteen inches. The feathers of the head and neck are stiff in their texture, (as is usually the case with these birds,) and of a polished metallic greenish blue. The general tone of the upper surface is greenish brown, passing into rufous brown on the upper tail-covers. Tail shining steely green. Under surface generally white. Thigh and under tail-coverts dull olive green. This species is common in Egypt, and is frequently seen in the Delta; it is called Hou-hou, by the Arabs, from its note, which is a repetition of those syllables. It is usually seen in pairs, and is said to feed, to a great extent, on locusts. Le Vaillant, who met with this bird in southern Africa, in the forests of Caffreland and other districts, mentions that it has a peculiar habit of perching lengthwise on a branch, and not transversely, a habit which we have seen to be the case in our European goatsucker. It begins its monotonous call at daybreak, continuing it till the sun is high, when it ceases, recommencing an hour or two before sunset.

Among others, Latham notices a Chestnut Coucal from India, called Cuco by the Bengalese, and Pheasant-crow by the Europeans. He observes, on the authority of Dr. Buchanan, that it is very common every where on the banks of the Arawady; is somewhat larger than a magpie, to which, except in feet and colour, it has a strong resemblance. It is said to be a solitary bird, and is generally seen hopping about, near some thickset

hedge, or among underwood by the sides of rivers, into which, if disturbed, it flies for refuge, and if driven thence, flies no farther than to the nearest tree, reluctantly shifting its place. In the stomach of one were found the bones of a lizard, mixed with the remains of insects."

The Malcohas, (*Phœnicophaus*, VIEILL.) constitute another group; they seem to be almost exclusively confined to India and the adjacent islands. The generic characters consist in the bill being stout, longer than the head, and gently curved from its base; and in the side of the head, for a large space round the eye, being destitute of feathers, and exhibiting a naked granulated skin. The wings are short, the tail long and graduated.

We may notice, as an example, the RED-HEADED MALCOHA, (*Phœnicophaus pyrrhocephalus*,) of Ceylon. In length, this bird is about sixteen inches; the general plumage above is shining greenish black; tail tipped with white, and very graduated; under surface white; the large naked space round the edges is orange red, bordered along its under margin with a rim of white. It frequents the deep woods, and is said to live, at least to a great extent, on fruits. But of its habits, as of the rest of its group, nothing is accurately known.

A group of richly coloured birds, called COUROUCOIS, or Trogons, (*Trogon*, LIN.) natives, one of Africa, and the rest of India, and the hotter portions of South America, have generally been referred to this family. In some respects they undoubtedly agree; but in the form of the bill, which is short, broad, with an arched ridge along the upper mandible, and furnished at its base with stiff projecting bristles, they are very dissimilar. The feet and tarsi are so small as to be invisible when the bird is perched. The tail is large, long, and graduated. The plumage is full, soft, silky, and richly painted. As it respects colouring, they however differ so much at different stages of their life, as to be confounded together, or, on the other hand, lead to a supposition of a difference of

species, where none exists. During the breeding season the males of many species put on ornamental plumes of the most gorgeous hues, and richest metallic lustre. Their food consists of insects of the harder kinds. They breed in the holes of trees. The species belonging to India and Africa are distinguished by the edges of the two mandibles being smooth; while in those from America they are serrated. In addition, we may state that the South American Trogons are all green, with barred or black tails, tipped with white; in many instances the barring is lost after a few moultings, the tail becoming white; the space round the eyes is feathered. In the Old World species the general colour is brown, one or two being very dull greenish; a naked space surrounds the eyes, and the feathers of the tail, which are white on their outer edge, undergo no change.

The Trogons, in their habits, exhibit a very striking analogy to some of the group of the Fissirostral tribe, the goatsuckers for example. Like them they sit solitary, motionless, and as if in a tranquil doze, on the branches of trees in the thickest part of the jungle, or the marshy forest; their eyes are closed, as if to shut out the light; and in this state they may be approached, and taken by the hand without any difficulty. Their season of activity is during the evening, when the sun is down, and in the morning before the dawn. Their large nocturnal eyes are then wide open, and the power of vision is in full exercise; from their perch they give chase to the beetle as it flits murmuring by, and return to it after a short but successful flight, in order to be ready for another chase. Their flight is buoyant and noiseless.

The first example we shall notice, is the RED-BELLIED TROGON, of South America, (*Trogon Curucui*, LIN.) This beautiful bird is nearly twelve inches in length. The whole of the upper surface and chest are rich shining green; wing-coverts gray, with zigzag lines of black; quills black; under surface fine red.

It is a native of Mexico, Brazil, Peru, and other parts of South America, where it dwells in the thickest forests,

in company with its mate ; during the breeding season it utters a plaintive note, by which its haunts are discovered ; at other times it is mute. The nest consists merely of the dust of decayed wood, which naturally accumulates in the hollows of aged trees ; on this the female lays her eggs, and during incubation is supplied by her mate with food, who beguiles the weary hours with his melancholy voice. The young birds, when first hatched, are said to be quite destitute of feathers, and with large and apparently disproportioned heads. The parents feed them with insects, larvæ, &c. till capable of obtaining their own supplies. Their plumage is dull, the upper surface being dusky brownish, in which respect they much resemble the female, who wants the brilliant green of the male.

But of all the species of Trogon, the RESPLENDENT TROGON, (*T. resplendens*, GOULD,) is by far the most gorgeous. The whole of the upper surface is a rich glossy intense green, changing in some lights into fine steel blue, the feathers being of a silky texture, and disposed in scale-like order. The wing-coverts are elongated ; and the tail-coverts so much so as to cover the tail entirely, two being nearly a yard in length, and forming a lovely plume ; the webs of each being loose and floating, as we see in a peacock's train. The under surface dark purple. The quills black, as are the middle tail-feathers, the six outer ones being almost wholly white. It inhabits Brazil : and till lately has been confounded with another species, the *T. parvulus*, (Spix.) Few specimens are to be seen in the museums of Great Britain.

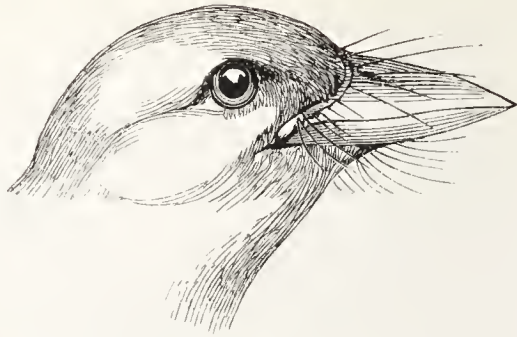
Leaving the family Cuculidæ, we come to that termed *Picidæ*, which includes the Barbets, the Woodpeckers, and the Wrynecks, birds of true scansorial habits, climbing about the trunks and larger branches of trees with great facility, and feeding for the most part on such insects as secrete themselves either in the crevices, or beneath the bark, or in the soft wood of decayed trees.

The BARBETS, (*Bucco*, LIN.) are distinguished by the beak being large, conical, swollen on its sides at the



THE RESPLENDENT TROGON.

base, and garnished with five distinct bundles of long bristles, one on each side over the nostrils, one at the angle of the beak, and a single brush under the chin.



THE HEAD OF THE BARBET.

The wings are short, the general proportions heavy, and the flight slow. They live on insects and fruits, and breed in the holes of trees. They are indigenous in both continents, and live for the most part in small flocks, except during the breeding season, when they separate into pairs. Many are richly coloured. Such for example is the *Bucco grandis*, a native of China, and the range of the Himalayan mountains. The head, neck, and throat are deep steel blue, changing in some lights to rich green; the back and chest are rich olive brown; the tail is green, as are the quills on their outer edges; the under surface is greenish, with dashes of brown and gray; the under tail-coverts are scarlet.

The Barbets lead off by insensible gradations to the true Woodpeckers, a group of birds full of interest, in whatever point of view they are examined, and particularly manifesting those marks of design which point out the wisdom of their Creator.

The Woodpeckers are widely distributed, and are found, with the exception of Australia, alike in both continents, each portion of the world having its peculiar species; they are essentially scansorial in their habits; the tarsi are short and strong, and the toes large, and armed with sharp hooked claws, which pierce the surface of the bark, or catch the slightest inequalities. Though the toes are

generally considered to be placed two before and two behind, yet such is not strictly the case; for the outer one of the hind toes, which is very long, branches outwards in a lateral direction, so as to apply itself length-



THE FOOT OF THE WOODPECKER.

wise down the trunk of a tree, during the process of climbing; and besides this, the other toes considerably diverge, so as to spread over an area as extensive as possible, in order that their grasp or application may be the more strong and effectual; a point not only of consequence during the progress of the bird up a tree, but perhaps even more so, while it is engaged in its laborious work of splitting the bark, or chipping away the wood, in search of insects, or in scooping out a hole for its nest. The characters of the Woodpecker's foot, will be well seen in the foregoing sketch. But in addition to the advantages thus derived from the powers of the feet, no bird is more indebted to the structure of its tail, as a co-operating agent, than the Woodpecker. Its tail, in fact, is an

essential support, and not this only, but even a propelling instrument, calculated to aid the bird as it climbs. It is composed of ten feathers, the central ones having the shafts strong, elastic, slightly bent inwards, and gradually narrowing to a point, which projects beyond the web. Thus pressed against a tree, these points being driven inwards, and catching every projecting roughness, the tail acts as a springy support or prop.

In addition to this, the webs of these central feathers, at least of many species, are not flat, but obliquely fixed on the shafts, so that their edges come in contact with the body up which the bird is climbing; and being composed of stiff plumelets, like split whalebone, with sharp points, they subserve also to the great end in view, forming several continuous lines of support for the superincumbent weight.

Nothing can be more efficient for the purposes intended, than the beak of the Woodpecker, that is, for splitting and chipping the trees: at its base it is strong and thick, narrowing as it proceeds, till it ends in a hard wedge-shaped tip, compressed at its sides. If the bill is an admirable wedge and chisel, the tongue is no less admirable as a flexible probe: long and worm-like, it is capable, by a peculiar muscular apparatus, of being protruded to a great extent, and is armed at its tip with a series of short spines directed backwards; in addition to which it is covered with a viscid saliva. This organ, endued with great latitude of motion, the bird inserts into the crevices of the bark, into the fissures it makes with its beak, or into any aperture, in search of insects and their larvæ, and withdraws it; the prey adhering to it by means of the saliva, and being prevented from rubbing off by the retroverted bristles which barb the tip. Such are the characters of this group, taken as a whole. There are however a few genera, in which we find them modified; we may instance the genus *Colaptes*, or that of the Ground Woodpeckers, birds which do not exclusively confine themselves to the trees, but visit the earth in quest of food, which consists of ants and other insects, as

well as of fruits and corn. The beak we find here to be much more slender, and slightly bent, though still a powerful instrument; and the tarsi and feet are less strongly formed. The beautiful Golden-winged Woodpecker (*Colaptes auratus*) is an example. We may also notice a genus of three-toed Woodpeckers, having two toes before and only one behind; the genus *Picoïdes*, (Lacépède,) and another with flexible tail-feathers, the genus *Picumnus*.

Buffon, with his usual flippancy, has condemned the whole family of Woodpeckers as degraded miserable beings; in fact, as parallel to the sloth as it stands in his semi-philosophical work. He says, “The narrow circumference of a tree circumscribes their dull round of life;” and on this they are “constrained to drag out an insipid existence in boring the bark and hard fibres, in order to extract their prey,”—“leading a mean and gloomy life, without intermission of labour;” while their “appetite is never softened by delicacy of taste.” Such are his sentiments, and much more might be added to the same purpose; but Buffon saw not God in His works, nor felt the influence of His glory as exhibited in creation. Hence his pictures are distorted caricatures, and often totally false, without a shadow of true resemblance. So it is with regard to the Woodpeckers, a group of active, animated, lively, beings; noisy and restless, flitting from tree to tree, and busy in their appointed work. But we will introduce a few of the most remarkable of this family to the notice of our reader, in order that he may judge for himself.

Our British species are the Greater Spotted Woodpecker, the Lesser Spotted Woodpecker, and the Green Woodpecker. To this we may add, that the Great Black Woodpecker has been killed in England; but nevertheless cannot be considered as truly British.

The GREAT BLACK WOODPECKER (*Picus Martius*,) is the largest of its European congeners, being in length about seventeen inches; it is common in the dense

forests of Russia, and also of Germany. Its colour is jet black, with the exception of the crown, which in the male is rich vermilion. The female is duller, and has either no vermilion on the head, or only a small patch. This fine bird is, however, far inferior in size to the celebrated IVORY-BILLED WOODPECKER, (*Picus principalis*,) of North America, which has been so admirably described both by Wilson and Audubon, and which, till very lately, has been considered the largest of the race. Wilson observes, that in strength and magnitude the Ivory-billed Woodpecker “stands at the head of the whole class hitherto discovered.” He was not aware, when he wrote, of the existence of a species in California, which as far exceeds the Ivory-billed Woodpecker as this does the *Picus martius* of Europe. This giant of its race is the *Picus imperialis*, the first notice of which occurs in the Proceedings of the Zool. Soc. vol. ii. p. 139. In length it is two feet. Of its manners we have no account; most probably they correspond in all respects with those of the Ivory-billed species, which it closely resembles, and to which we direct our reader’s attention.

The IVORY-BILLED WOODPECKER (*Picus principalis*) is a native of the deep swampy forests of the United States of America, but is never seen in the middle states, the woods there appearing unsuited to its habits. “Descending the Ohio,” says Audubon, “we meet with this splendid bird for the first time, near the confluence of that beautiful river and the Mississippi; after which, following the windings of the latter, either downward toward the sea, or upwards in the direction of the Missouri, we frequently observe it. North Carolina may be taken as the limit of its distribution, although now and then an individual may be accidentally seen in Maryland.” “The lower parts of the Carolinas, Georgia, Alabama, Louisiana, and Mississippi,” are its favourite regions. Here it takes up its abode amidst the almost inaccessible forests of noble cypress-trees, which rise towering from black and gloomy swamps of prodigious extent; some in all the luxuriance of maturity; some moss-grown, as if

hoary with time; some bare and leafless, emblems of decay; some prostrate, their huge trunks appearing from out the slimy ooze, whose surface is carpeted with flags



THE IVORY-BILLED WOODPICKER.

and water-lilies, concealing a treacherous morass, the abode of frogs, serpents, and alligators, and the stronghold of pestilence. Such are the favourite localities of this interesting bird. Here, says Wilson, “amidst ruin-

ous piles of impending timber, his trumpet-like note and loud strokes resound through the solitary savage wilds of which he seems the sole lord and inhabitant. Wherever he frequents, he leaves numerous monuments of his industry behind him. We there see enormous pine-trees, with cart-loads of bark lying around their roots, and chips of the trunk itself, in such quantities, as to suggest the idea that half a dozen of axe-men had been at work there for the whole morning." Yet all observers agree that it is not upon sound and healthy trees that this destruction is usually committed, but upon trees into whose substance, or between the bark and wood of which, insects have already penetrated and formed a lodgment, at once fatal to the tree, and the harbingers of its speedy decay. From the ravages of insects millions of trees are said to perish yearly in these forests, and in our own country we know the extent of injury to be often considerable; hence, contrary to the opinion of Buffon, who was for destroying the Woodpeckers as the cause of the mischief, the wisest plan would be to encourage them as the natural preventives of it.

The Ivory-billed Woodpecker prefers the tops of the tallest trees, whence it seldom descends to the ground; yet Audubon states that if it discovers the half-standing broken shaft of a decayed tree, it sweeps to it, and attacks it so earnestly "as to demolish it in the course of a few days;" and he adds, "I have seen it" (so great is its strength) "detach pieces of bark seven or eight inches in length at a single blow of its powerful bill; and, by beginning at the top branch, tear off the bark to an extent of twenty or thirty feet in the course of a few hours, leaping downwards, with its body in an upright position, tossing its head to the right and left, or leaning it against the bark to ascertain the precise spot where the grubs were concealed, and immediately renewing its blows with fresh vigour, all the while sounding its loud notes as if highly delighted." Besides insects and their larvæ, this species (as it is the case with the group in general) eats various berries and fruits, such as wild grapes, &c.

The flight of the Ivorybill is very graceful, consisting of a series of sweeping undulations, the wings being opened and closed at each fall and rise. It passes, however, easily from one tree to another, even though the distance be a hundred yards, at a single sweep.

If this bird ever bores into living and healthy timber, it is in order to hollow out a cavity for the purpose of incubation. This cavity is always at a considerable height, and close beneath an overstretching arm or branch, so that the aperture may be shielded against the beating in of the rains. It is first bored horizontally for a short distance, and then directly downwards to the depth of from ten inches to two feet and upwards. The entrance is round, and just admits the passage of the occupants; but the chamber within is large and commodious. The eggs are pure white, and placed on a few chips which cannot be called a nest. The parents remain unseparated during life, and they labour mutually at the construction of their breeding-place, relieving each other in turn.

The head and bill of this species is held in great esteem as a sort of charm or amulet by many of the tribes of Indians, who ornament their belts, &c. with them. The length of this bird is twenty-one inches; bill, ivory white, straight, and strong; general plumage glossy black; head ornamented with a beautiful crest of long slender feathers, capable of being raised or depressed, and of a rich carmine. A stripe of white passes down the neck on either side, and terminates on the scapulars. The primary quills, except the five first, are tipped with white; the secondaries are wholly white, so as to make the back appear almost exclusively of this colour. The female resembles the male except in the colour of the crest, which is black.

Another interesting species, common throughout the United States, is the RED-HEADED WOODPECKER, (*Picus erythrocephalus*,) a bird of lively and familiar habits, and to be met with even in the vicinity of large towns, hovering along the fences which divide orchards and fields

of Indian corn, where it commits much depredation on the ears while in their young and succulent state, nor less on the cherry-trees when the fruit is ripe, and also on mulberries, pears, apples, peaches, &c. These they do not attack singly, but in flocks, a hundred having been shot on one cherry-tree in the course of a single day. While thus enjoying the sweets of a luxurious repast, they are full of frolic and gaiety, and utter their shrill notes as if from exuberance of delight. The feast ended, they retire in parties to the tops of trees beginning to decay, and amuse themselves and the observer of them by gambolling with each other, sportively chasing each other on the wing, or darting at insects as they pass, and displaying, as they sweep along, the contrasted colours of their beautiful plumage. In climbing along the bark, they are as active as can be imagined; they traverse a tree from the lowest part to the top without any apparent effort. Though confessedly devourers of fruit, insects form their main support, and these they search for in the manner of the rest of the family, being capable, by the exterior appearance of the bark, or of the sound given on striking it, of ascertaining the presence of larvæ beneath.

Audubon, observing that the life of these birds is one of pleasure, adds, "They do not seem to be much afraid of man, though they have scarcely a more dangerous enemy." They will, indeed, allow themselves to be approached very closely when perched on a fence-stake or a dead and branchless tree, taking care to keep on the opposite side, and peeping every moment at the intruder as if to watch his actions, turning as he turns, so as to be as long as possible on the safe side. Man is not, however, their only foe; the black snake is another and a more deadly enemy. Like a skulking savage, this agile creature frequently glides up the trunk of a tree and enters (says Wilson) the "Woodpecker's peaceful apartment, devours the eggs or helpless young in spite of the cries and flutterings of the parents, and, if the place be large enough, coils himself up in the spot they occupied, where he will sometimes remain for several days. The eager

schoolboy, after hazarding his neck to reach the Woodpecker's hole, at the triumphant moment when he thinks the nestlings are his own, and strips his arm, launching it down into the cavity and grasping what he conceives to be the callow young, starts with horror at the sight of a hideous snake, and almost drops from his giddy pinnacle, retreating down the tree with terror and precipitation. Several adventures of this kind have come to my knowledge, and one of them that was attended with serious consequences, where both snake and boy fell to the ground, and a broken thigh and long confinement cured the adventurer completely of his ambition for robbing Woodpeckers' nests."

In the northern districts, at least, the Red-headed Woodpecker is a migratory bird. In Pennsylvania they arrive early in May, and retire in October. They inhabit from Canada to the gulf of Mexico. They breed about the middle of May, constructing a spacious chamber in the body or large limbs of decayed trees; the eggs are five or six in number, and, as usual in this family, of a pure white. The head and neck are bright crimson; upper surface generally of a rich black, with blue reflections, the rump and secondaries being white; under surface yellowish white; length nine inches.

The Golden-winged Woodpecker has been already alluded to as the example of a genus termed *Colaptes*, characterized by a sligher, and somewhat incurved, but sharp-pointed bill, and by tarsi and feet less powerfully constructed. Indeed, a great portion of the time of the birds of this genus is passed on the ground in search of ants and their young, for the procuring of which the form of the bill is admirably calculated. In the species just described we found the bill strong, straight, and wedge-shaped, and used, in fact, as a wedge for piercing and splitting bark and timber. In the present genus, the beak retains little of its wedge-shape, but is more like a long sharp pick-axe, in order that it may the better dig up the nests of ants either on the ground or on the old stumps of decayed and mouldering trees. In consequence

of the terrestrial habits of the birds of the genus *Colaptes*, they have been termed "Ground Woodpeckers." The trees, however, must be considered as their true habitat, for in them they dig out a chamber for their nesting-place, and perforate the bark in search of the insects beneath.

Between the former group of Woodpeckers and the present, the GREEN WOODPECKER, (*Picus viridis*,) of our own island, together with several allied continental species, stands as an intermediate form, both as it regards habits and structure. As in the restricted genus *Picus*, the members of the genus *Colaptes* are by no means confined to one region, but are found both in the Old and New World. Several beautiful species are natives of Africa, such as the *Colaptes Cafer*, the *C. olivaceus*, and others. As, however, the habits of the GOLDEN-WINGED WOODPECKER of America, (*Colaptes auratus*,)



THE GOLDEN-WINGED WOODPECKER.

have been most thoroughly and minutely studied and described, we shall select that elegant bird for our example. The Golden-winged Woodpecker, or the *Flicker*, as it is popularly called, is abundant throughout the whole of

the United States, where it is celebrated for its liveliness and activity. No sooner has spring clothed the woods with verdure, than the voice of this bird is heard on every side, resembling a “prolonged and jovial laugh at a distance,” or with the loud hammering it makes in chipping out a hole for the purpose of incubation. In this laborious operation the male and female alternately relieve and encourage each other by mutual caresses, and daily continue the work until they have excavated a capacious chamber. This done, they pass the time in frolicking about the branches. “They climb about and around the tree with apparent delight, rattle with their bill against the tops of the dead branches, chase all their cousins the red-heads, defy the purple grakles to enter their nest, feed plentifully on ants, beetles, and larvæ, cackling at intervals, and ere two weeks have elapsed the female lays four or six eggs of a transparent whiteness.”

This interesting bird is often seen hopping on the ground busily picking up ants and other insects, or intent in examining the dead roots of trees or prostrate logs, every now and then pegging away in order to dislodge and capture some victim fated to be either devoured on the spot, or carried to its young. To such diet it adds fruits of various kinds; as, for example, grapes, apples, and berries, wild or cultivated, as well as young and succulent corn. Its flight is strong and straight, or at least has less of an undulating character than is the case with Woodpeckers in general; it is maintained by numerous flappings of the wings, with short intervals of sailing. Audubon states it is a bird of partially migratory habits, retiring from the northern districts southwards in winter. He observes, however, that “many remain in the middle districts during the severest winters.” These migrations “are performed under night, as is known by the note of the birds, and the whistling of their wings, which are heard from the ground, though by no means so distinctly as when they fly from a tree or from the earth when suddenly alarmed.”

The plumage of the present species is very beautiful: the top of the head is of a purplish gray, a crescent-shaped

bar of rich scarlet bounding the back part; the upper parts are light brown, inclining to chestnut, thickly barred with black; quills black, their shafts being of a deep golden yellow, as are the shafts of all the larger feathers also; tail black; rump white; sides of the cheeks and throat light cinnamon colour, with a black stripe extending for about an inch from the base of the beak; under surface reddish white, with a black gorget on the chest, and round black spots thickly dispersed over every part below; under surface of the wings and tail rich yellow. The female wants the black stripe on the cheeks. Length twelve inches and a half.

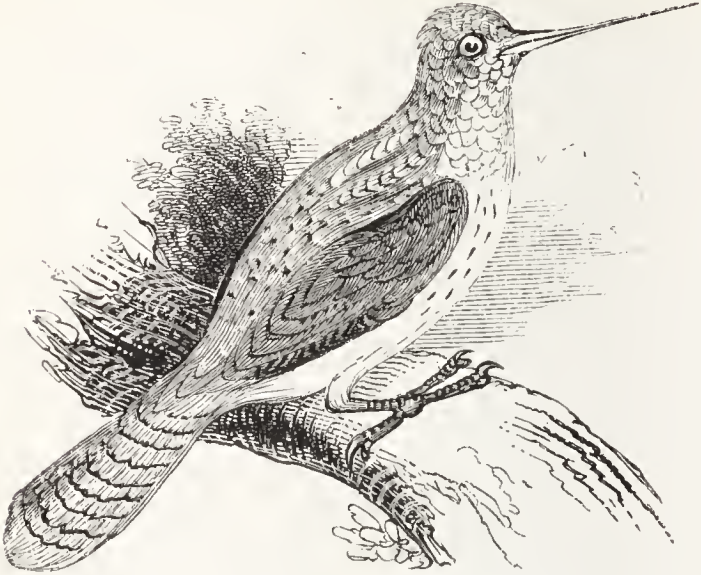
Here may be closed this sketch of the Woodpeckers, an active animated race; very different indeed from the stupid, forlorn, dejected, unprovided-for beings they have been by some represented. Wilson well observes of the eloquent promulgation of such libels on nature, "that Buffon had too often a favourite theory to prop up that led him insensibly astray; and so, forsooth, the whole family of Woodpeckers must look sad, sour, and be miserable to satisfy the caprice of a whimsical philosopher, who takes it into his head that they are and ought to be so." Theories have indeed too often led men astray from truth, and he who looks at nature through such a distorted medium will see little of the power, or the wisdom, or the mercy of God displayed in his works; he will colour all things with the jaundiced hue of a distempered fancy, and miss the harmony, order, and beauty of the whole. But the true philosopher sees God in all his works, and that order, that harmony, and that dependance which testify of their Creator and Preserver. And, instructed by the Holy Scriptures, through these visible things which appeal so forcibly to his senses, he is led to the contemplation of things that are invisible, of a new heaven and a new earth, of the eternal God not only as a Creator, but as a Redeemer and a Judge. The contemplation of the animal kingdom naturally conduces in a sensible mind to reflections on the origin and ultimate destiny of man at its head, a subject more connected with natural history

than many modern naturalists will allow. Let such reflexions be followed up with candid inquiry, and an earnest desire for truth, and we fear not the result. Lest, however, some should deem us wandering from our path, we leave this train of thought to be pursued by our readers.

The last of the families of *Picidæ* is a genus which, with many of the habits of woodpeckers, on the other hand possesses characters decidedly separating it from them: it is termed *Yunx*, and includes but two species; one peculiar to Africa, and distinguished by its rufous breast; the other, one of our summer birds of passage. The generic characters consist in the beak being straight, pointed, and round, and the nostrils bare; the tongue is worm-shaped, and pointed, and, as in the woodpeckers, capable of being protruded to an amazing distance; it is covered with viscid saliva, but not armed at the tip with retroverted prickles. The tail is composed of feathers destitute of stiff shafts; it therefore is not an instrument for assistance in climbing, nor in fact do the birds of this genus exhibit climbing habits to any thing like the same extent as the woodpeckers, but flit from point to point, and cling with facility to any rough projection.

Our British example is that elegant bird the WRYNECK, (*Yunx Torquilla*.) Though little known in the northern parts of our island, the Wryneck is common in the southern and eastern counties, arriving early in April, when it gives notice of its presence by its loud cry of *peep, peep, peep*, repeated for a minute or two together, and resumed in a short time with the same monotony. Groves, gardens, orchards, and small woods of old trees are its favourite resort; such situations affording it food in abundance, and every facility for the hatching and rearing of its young. Ants and their eggs are its favourite diet, and in quest of these it not only traverses the rugged surface of decaying trees, insinuating its tongue into the crevices, but descends to the ground, where it both hops and walks; and it is very curious to see, when it has discovered an ant's nest,

with what dexterity and rapidity it takes its food, picking up the insects one by one by darting at them its long slender tongue, and withdrawing it so instantaneously that the action is almost imperceptible. The tongue seems also to be used as a feeler, or perhaps an organ of



THE WRYNECK.

taste, for we have seen the Wryneck in captivity touch with it any substance presented for food, such as boiled potatoes or meat, keeping it at the same time in a state of quivering vibration. Such substances were of course unnatural diet.

The Wryneck incubates in the holes of trees produced by decay; for it does not, like the woodpecker, excavate its own cell, the strength of the beak being inadequate to such a purpose. Without making any nest, the eggs are deposited on the wood; their number is seven or nine, and their colour a pure transparent white. The young, if molested, hiss like snakes; as do the old birds also if wounded or trapped, at the same time also erecting their crest, and defending themselves with great spirit. From this circumstance has arisen the name of Snake Bird, by which it is known in some places. That of Wryneck it has acquired from its singular habit of twisting and writh-

ing its neck with odd contortions when excited or alarmed. Cuckoo's Mate is another name, from the circumstance of its appearance eight or ten days before that bird.

The Wryneck leaves our island early in autumn, retiring to the southern parts of the continent. It is very extensively spread, specimens having been received from India and Africa.

Though its colours are not gaudy, they are not to be exceeded for the beauty and taste with which they are disposed: the upper parts are brown and gray, exquisitely dotted and chequered with spots, dashes, and zigzag bars and lines of black and rufous, to which the utmost efforts of the artist fail to do justice; the under parts yellowish white, with arrow-shaped spots and bars of black. Length seven inches.

We have described the Woodpeckers as climbers *par excellence*, as birds passing their lives principally, if not entirely, among the trees, on and under the bark of which the greatest portion of their food was to be obtained. Yet of these woodpeckers we found that some groups deviated from the ordinary standard, and were as much terrestrial as arboreal in their habits. So shall we find it in the next family, to which we invite attention, a family of true climbers, though in a manner totally different from that of the woodpeckers, inasmuch as they differ in food and structure of body. We allude to the

FAMILY PSITTACIDÆ, or PARROTS.—This extensive group of birds is divided into numerous genera, possessing certain well defined characters in common, but distinguished from each other by a variety of minor shades of difference; these would lead us into details of value only to the professed zoologist, and convey but little instruction to the general reader. We may observe, then, that the family of Psittacidæ can never be confounded with any other; it is distinguished by strong and decided features. The beak, for example, is hooked, stout, thick, and solid, with a membrane at the base of the upper mandible. The lower mandible is swollen, recurved, with its

tip either entire or deeply indented. The tongue is thick, fleshy, and rounded; but sometimes, as in a New Holland race, armed at the tip with a feathery brush for extracting the nectar from the nectaries of flowers. Their food consists, in the ordinary way, of fruits; they incubate in hollow trees; the eggs are usually two only in number, and white in their colour.

The Parrot tribe, as already observed, are essentially climbers. Spread over the warmer regions of Asia, Africa, and America, abounding in New Holland, the Moluccas, and other islands of the southern ocean, they attract the notice of the traveller by their noise and restlessness. Congregated for the most part in flocks, they are seen traversing the trees, passing from bough to bough, or hanging suspended in playful frolic by their beak or feet, their harsh voices sounding in clamorous concert. They do not, however, climb up the trunks of trees like the woodpecker, for their feet are very differently moulded;



PARROT'S FOOT.

instead of the toes being long, diverging, and armed with sharp, curved claws, they are rather short and close together, two behind and two before, the under surface being palm-like; they are formed expressly for holding, or grasping an object which they can enclose, as branches or twigs; nay, to such an extent is this power of the foot carried, that they rest, while feeding, on one foot, holding

their food to their bills in the other. Hence it results that the climbing of these birds is not squirrel-like up the rough bark of a massive stem or trunk, but from bough to bough and twig to twig among the foliage. And this they do with a sort of careful deliberation, making as much use of the beak as the feet; for the beak serves as a hook of material use to such as are exclusively arboreal; in these we find it strong, and its point remarkably developed. In illustration, we subjoin a sketch of the beak of the Gray Parrot, and of the Red and Yellow Maccaw.



PARROTS' HEADS.

Their mode of proceeding is by first hooking the beak upon a branch, and having thus secured it, thereby advancing the feet towards it, grasping it by one or both, and so going on to the next within reach. These climbing powers, and this handlike use of the foot, have led some naturalists to fancy an analogy between them and their neighbours the monkey tribes, that are gamboling in the same woods; but there appears little ground for the comparison. The Parrot proceeds in a slow crawling manner, as if cautiously measuring every step; the monkey bounds from branch to branch with a velocity and agility scarcely conceivable. To say that the monkey has a hand, and the Parrot as near an approach to a hand as

a bird can have, is to say merely that the same end requires the same means.

The flight of the birds of this family is very various; some fly with a rapid fluttering, incapable of being long sustained; some, however, wing their way on pinions of great power and energy, and are scarcely to be exceeded in the rapidity or continuance of their flight.

The Parrots are a social race, living in great harmony together, but not readily admitting strangers from other flocks into their society. They are fond of preening and picking each other's plumage, and of scratching each others heads and necks. When they roost, they crowd altogether; and many species sleep suspended by one foot, with the head downwards.

Parrots are above all birds the most susceptible of being rendered tame and familiar. In captivity, though often capricious, and seldom receiving the advances of strangers without manifesting aversion or hostility, they display great affection towards their protectors, and are evidently delighted at being noticed and caressed. They are the most intelligent of the feathered race; they are gifted with an excellent memory, and have been long celebrated for their powers of imitating the human voice. Words, sentences, and tunes they learn and accurately repeat; they mimic the voices of other animals, the barking of dogs, the crowing of poultry, &c.

In the classical writings of antiquity are many references to these birds, which appear to have been great favourites and in general request. Aristotle well described their tongue as resembling that of man; whence, as he conjectured, arose the facility with which they pronounced words or sentences; and in this opinion he was followed by other writers of inferior note.

The Greeks were the first who became acquainted with the birds of the Parrot family; these, from all accounts, were introduced from India into Europe at the time of the Macedonian conquest; and having once been brought into Greece, continued to be imported, the demand being great, and the prices given extravagant. Aristotle calls

the Parrot, “*Ἰνδικὸν ὄρνεον*,” or Indian bird; Solinus says, “*Sola India mittit Psittacum avem*,” India alone sends the Parrot; and we find in Ovid this line,

“*Psittacus, Eois imitatrix ales ab Indis.*”

From Greece, the Indian Parrot soon found its way to Rome, and there became not only admired, but the theme of poets and the favourite of princes. They were carried about in public; their cages were of the most costly workmanship, tortoise-shell, ivory, gold, and silver, being lavished in their composition; nor was any price, however inordinate, deemed beyond their value. These signs of luxury, and a degenerate age, were severely noticed in the philippic of Cato the Elder against the vices of his day; but the torrent was too strong for even Cato to stem, and the Parrot was still a reigning favourite. Augustus and Vespasian had Parrots of great celebrity; and all whose fortune permitted it followed the imperial example. From the poets we gather that at this period the name of *Cesar* was the word of flattery which Parrots were taught to pronounce, in honour of the monarch; whence, in Statius, (Sylv. l. ii.) we find this bird not only called “*dux volucrum*,” the chief of the feathered race, but also “*saluator regum*,” the “saluter of kings.” And Martial, in his Epigrams, alludes to the same thing, when he makes a Parrot say—

“*Psittacus a vobis aliorum nomina discam
Hoc didici per me, dicere, Cæsar ave!*”

The Parrots known to the Greeks and Romans, at least till the time of Nero, were brought from India, and the accurate descriptions given by Pliny, Apuleius, and others, enable us to identify them with several species, the favourites of modern times, and brought to us from the same country. We may instance the Rose-ringed Parakeet, whose colour and ring Solinus thus describes, “*colore viridi, torque puniceo*.” The birds of this group form the genus *Palæornis* of Vigors, and are distinguished for beauty and gracefulness.

In the time of Nero, the Romans became acquainted

with the Parrots of Africa; and as the celebrated naturalist just referred to observes, “it is probable that as that country became more known, numbers of the same race were imported from it into Rome, and formed the chief part of the victims of the Parrot tribe, which in after times are said to have supplied the inordinate luxury and wantonness of Heliogabalus.” Among other articles in the bill of fare detailed by Ælius, as entering into the feasts of this emperor, we find the combs of living fowls, the tongues of peacocks and nightingales, the brains of flamingos and thrushes, and the heads of Parrots, pheasants, and peacocks; and it is also observed that he fed his lions and other beasts with Parrots and pheasants.

The extent, as it regards numbers, of the present family has been already mentioned; thence, in connexion with a considerable diversity in their forms, has arisen the necessity of subdividing the family into groups, each of which contains many genera. Without entering into minutiae, and overlooking the minor subdivisions, we may observe that the *Psittacidae* may be arranged as follows: namely, True Parrots, Parrakeets, Maccaws, and Cockatoos.

The True Parrots are distinguished by the face being feathered; by the largeness of the head, which is without a crest; by the body being robust, the tail short and square, and the wings rounded.

The TRUE PARROTS (*Psittacus*) are natives both of Africa and South America; the GRAY PARROT (*Psittacus erythacus*) being of the former, the AMAZONIAN PARROT (*P. Amazonicus*) of the latter country; together with many others. Both of these birds are well known in England, and require no description; they are remarkable for docility and the power of enduring our uncongenial climate, attaining in captivity to a great age. Many instances are recorded of Parrots having lived twenty, thirty, or forty years; some even longer. One is living at the present moment, active and healthy, which has been full forty years in the possession of its master.

Of all Parrots the Gray species from Africa is the most apt at acquiring words or tunes, and its voice is the most musical and sonorous; the Amazonian or Green Parrot, however, is little inferior in imitative powers, but its voice is harsh and unpleasing. A volume might be filled with anecdotes of these birds, and many marvellous accounts have been given to show that they are gifted not only with the power of utterance, but of understanding also. Not a quarter, however, of the current stories are even founded upon truth, and the rest are to be taken with due allowance for a little colouring to heighten the effect. Whatever the Parrot may utter, and however distinctly, the reader may rest assured that the bird attaches no ideas to the words, and strictly connects them with nothing, but merely repeats them as sounds, which having heard again and again for weeks together, it has learned at length to imitate. Hence, when excited either by anger, fear, or pleasure, when desirous of obtaining a favourite kind of food, or when testifying its fondness for its benefactor, it utters its acquired sentences, either in place of its natural voice, or alternating with it. It may be, also, that in consequence of being for a length of time duly rewarded after such essays, it may repeat words or sentences as a kind of call or cry for favourite food; experience having brought it to a perception that certain sounds will be followed by the customary treat. Under such circumstances, it matters not what you teach the Parrot to say; it may be, "Bread and butter," or "Sugar," it may be any unmeaning phrase, or the notes of a tune, or the noise of an animal; for it will accordingly utter any intonation it has learned, upon the excitement of the moment, produced by the sight of food to which it is partial, and which is almost within its reach.

In their natural state these birds are united in companies, which keep up an incessant clamour as they proceed in quest of food: the kernels of fruits and nuts, &c. form their chief subsistence. Their flight is by no means remarkable for vigour; indeed it is incapable of being long sustained, a short flit from tree to tree being the utmost to which it is usually exerted. They incubate in

the hollows of decayed trees ; the eggs are two in number, and of a pure white.

The Parrakeets are distinguished by the general elegance of their form, which is much more slender than in the Parrots ; the head also is smaller, and the beak shorter and more feeble ; the tail is always graduated, generally elongated, and often pointed, the middle feathers far exceeding the rest, and narrowing as they proceed. They constitute a widely diffused group, all beautifully, many richly coloured with green, and blue, and violet, and yellow, and red. Exhibiting many modifications of form, they are subdivided into numerous genera ; of these, as the most important, we may notice the following :

First, the Even-tailed Parrakeets, (*Psittacula*,) distinguished by their diminutive size, and by the shortness of the tail, which is merely rounded ; they are the smallest of the whole race, and evidently unite the True Parrots to the Parrakeets, between which groups they appear to occupy an intermediate situation. They are natives of the torrid zone.

The beautiful little LOVEBIRD (*Psittacula pullaria*) is an example of this genus. This species is a native of Guinea, and scarcely exceeds a sparrow in size. It is much valued as a cage bird, its captivity being usually relieved by the presence of its mate, (for it is customary to sell them in pairs,) to which it manifests the warmest attachment ; it is very interesting to see them dress each other's plumage, caress and fondle each other, and by various actions indicate their mutual attachment. They sleep suspended with the head downwards, clinging by one foot alone. The colour is green, the outer webs of the quill-feathers being blue, and the tail being banded with a bar of lilac.

Next may be noticed the True Parrakeets, (*Palæornis*,) natives of India and Africa, and distinguished by the length of the tail, which is not only graduated, but has the two middle feathers elongated and slender. The wings are moderate, the three outer quills being the

longest; the tarsi are short and weak; contour of body graceful. In their powers of flight they far exceed the heavily formed Parrots.

Of this group we may introduce the MALACCA PARRAKEET, (*Palæornis Malaccensis*, VIG.) a bird of great



THE MALACCA PARRAKEET.

elegance, and by no means common in museums. The general colour is fine bright green; the sides of the head and back of the neck being vinous lilac, a black moustache

extending down each side of the neck from the base of the lower mandible; the beak is red. It inhabits various parts of India, especially the Malacca country, and is found in Sumatra and the adjacent islands.

The ROSE-RINGED PARRAKEET (*Palæornis torquatus*) is another example. Of this bird we have already spoken; besides being found in India, it is met with also in Africa, and indeed is said to be abundant on the coast of Senegal. The general colour is green, with a rose-coloured collar round the neck, the bill being deep ruby.

New Holland presents a group termed, from their habits, Ground Parrakeets. Instead of confining themselves to the trees, and making the branches their home, the birds of this group search for their food and pass a great portion (perhaps the greatest) of their time on the ground; where, instead of displaying that awkwardness which we are accustomed to see in the parents, these birds trip along as nimbly as a lark or wagtail. Their food appears to consist of soft berries, the produce of low shrubs, as well as of buds. In conformity with their terrestrial habits, so opposite to those of the family in general, we may expect an appropriate modification of the limbs. Accordingly, we find the tarsi more slender and lengthened; and the toes, though still two before and two behind, less finger-like, less curved, and more capable of being applied flat to the ground. The beak is moderate; the wings are rounded; the tail is long, graduated, and in some broad and flat also. These latter constitute the genus *Platycercus*, (Vig.) or the Broad-tailed Ground Parrakeets; they are all distinguished for elegance and richness of colouring, and for liveliness of manners; though less apt at imitation than many others, they are highly valued as cage favourites, from their gentleness, intelligence, and beauty.

We may notice the NONPAREIL or ROSE-HILL PARRAKEET (*Platycercus eximius*) as an example. This bird is one of the most engaging of its race. In captivity it soon becomes very docile, and greets its protector with

every indication of attachment. It is very fond of the bath, and it may often be seen to saturate its plumage with water, enjoying a luxury which, from a mistaken idea of its being injurious, persons are apt to deny to their captives of the parrot tribe.

Among the most interesting examples we may mention the *Platycercus pacificus*, *P. Stanleyi*, *P. Pennantii*, *P. scapalatus*, &c. Of these, living specimens are to be seen in the Gardens of the Zoological Society.

Another genus of ground Parrakeets is that termed *Pezoporus*; we find the tail in this long, but not broad and flattened. Only one species is at present known, the *Pezoporus formosus*, (Ill.)

The structure of the Parrot's tongue has been mentioned as being thick and fleshy, a circumstance giving it a resemblance to that of man; but this rule is not without an exception. New Holland and the Indian islands present a group of parrots whose tongues are tipped with bristle-like filaments, in the form of a brush. They procure their food from the nectaries of flowers, which in those regions bloom in perpetual succession; fruits, berries, and buds, however, are also added to the honey of the nectary. The Filamentous-tongued Parakeets are represented by the genus *Trichoglossus*, (Vigors,) a genus characterized by the beak being slender, and rather elongated, the under mandible being laterally compressed, the wings of moderate length, but pointed, and formed for flight; the tail rather short, but graduated; the tarsi short; the tongue bristly at the tip.

The birds of this genus are quick and rapid in their flight; and those who have seen them in their native regions state, they are exceeded by no other bird. Hence they are much on the wing, darting from flower to flower, or tree to tree, with the velocity of an arrow. The most familiar example is the *Trichoglossus hæmatodus*.

The Lories (*Lorius*, Vigors) of India and the islands

form a section also of this group. The wings are moderate, the tail rather short and nearly rounded, being but slightly graduated. The Lories are at once to be distinguished by the richness of their hues; purple, scarlet, and deep green, but especially the two former, are the usual ground colours of their plumage. Several species are to be seen in the Zoological Gardens.

The Parrakeets are united to another group, namely, the Maccaws, by several interesting links, such as the Dwarf Parrakeet-Maccaws (*Nanodes*, Vigors) of New Holland, and the Parrakeet-Maccaws (*Psittacara*, Vig.) of South America. The Maccaws are distinguished, among other things, by the cheeks being bare of plumage; and in these intermediate links, this character, though in a minor degree, is also exhibited in a naked circle round the eye. In many points the genus *Nanodes* is allied to *Pezoporus*, the species being terrestrial in their habits. The tail is long and graduated, and the wings of moderate length. One of the most beautiful examples is the *Nanodes venustus*; in length it is eight inches. Naked circle round the eyes yellow; a narrow blue band passes from eye to eye across the forehead; the upper and under wing-coverts, and tail above, blue; the tip of the last yellow; its under surface black, bounded by yellow. Quills black, sprinkled with blue; back olive green; throat and chest deep green; rest of the under surface yellow.

The genus *Psittacara* is confined to America. The beak is stout, the wings moderate, the tail long and graduated, the tarsi strong and short, the orbits naked. An example of this genus is the CAROLINA PARROT, (*Psittacara Carolinensis*, Vigors,) a bird whose habits and manners are admirably detailed from personal observation both by Wilson and Audubon. This beautiful and interesting bird is a resident in the interior of Louisiana and along the Mississippi and Ohio, advancing even as far as Lake Michigan, lat. 42°. “Eastward, however, of the great range of the Alleghany, it is seldom

seen farther north than the state of Maryland ; though straggling parties have been occasionally observed among the valleys of the Juniata." Such visits are but accidental. Wilson observes that it is a hardy bird, " more capable of sustaining cold than nine tenths of its tribe" " having," says he, " seen them in the month of February along the banks of the Ohio, in a snow storm, flying about like pigeons, and in full cry." The favourite food of this bird is the seeds of the cockle-bur, (*xanthium strumarium*,) a plant abounding in the rich alluvial districts bordering the Ohio and Mississippi ; here also vast woods of sycamore and cypress afford a secure retreat ; hence such localities hold out every inducement to it to take up its residence. Besides the cockle-bur, other fruits are eagerly devoured ; but it does more mischief to the orchard or plantation by the wanton manner in which it strips the trees, than by what it actually eats. Pear, apple, or mulberry trees are often assailed by a flock, which, proceeding from branch to branch, leave the tree only when it is denuded, and then merely to commence their operations on another. Stacks of grain also suffer materially from the same process, the maize alone escaping their ravages. Audubon notices their fondness for sand, in which they scratch holes, with bill and claws, rolling and fluttering in it, and also swallowing small portions. The salt licks, as they are termed, are also a great attraction, for the sake of the saline earth, to which, in common with many animals, they are very partial. Like the more typical of the family, this species of Parrakeet is slow, creeping, and awkward on the ground ; its flight, however, " is rapid, straight, and continued through the forests, or over fields and rivers, and is accompanied by inclinations of the body, which enable the observer to see alternately their upper and under parts. They deviate from a direct course only when impediments occur, such as the trunks of trees or houses, in which case they glance aside in a very graceful manner, merely as much as may be necessary. A general cry is kept up by the party, and it is seldom that one of these birds is on wing for ever so short a space without

uttering its cry. On reaching a spot which affords a supply of food, instead of alighting at once, as many other birds do, the Parrakeets take a good survey of the neighbourhood, passing over it in circles of great extent, first above the trees, and then gradually lowering, until they almost touch the ground, when, suddenly reascending, they all settle on the tree that bears the fruit of which they are in quest, or on one close to the field in which they expect to regale themselves. They are quite at ease on trees or any kind of plant, moving sideways, climbing or hanging in every imaginable posture, assisting themselves very dexterously in all their motions with their bills. They usually alight extremely close together. I have seen branches of trees as completely covered by them as they possibly could be. If approached before they begin their plundering, they appear shy and distrustful; and often at a single cry from one of them the whole take wing, and probably may not return to the same place that day. Should a person shoot at them as they go, and wound an individual, its cries are sufficient to bring back the whole flock, when the sportsman may kill as many as he pleases. If the bird falls dead, they make a short round, and then fly off." They roost in companies, in the hollows of trees, and choose such places also to breed in, several females depositing their eggs together, and hatching them in social concert. Two is the number of eggs laid by each individual. The young birds are at first covered with soft down, and afterwards green plumage, but do not acquire their full livery until two years are passed. The bill and naked space round the eye are white; forehead and cheeks orange red, passing into rich pure yellow, which covers the rest of the head and the neck; the shoulder is also tipped with orange; the rest of the plumage is emerald green, with light blue reflexions, paler on the under parts, the feathers of the thighs being yellow. Length fourteen inches.

The genus *Psittacara* leads directly to that of the Maccaws, (*Macrocercus*,) characterized by the size of the bill, the upper mandible of which is strongly hooked,

the lower capacious, and deeply indented at its tip, as if a semilunar piece was cut out; the face is naked, or striped with narrow lines of feathers; the tail is very long, graduated, and pointed. The Maccaws are all natives of tropical America; and are clothed with the most brilliant plumage, the colours of which are strikingly contrasted. They are all of large size, and do not congregate, but live in pairs. The splendour and richness of their plumage has rendered them favourites in captivity; and though by no means apt at imitation, they are mild, gentle, and docile; their deportment is grave, and accords with the hoarse tones of their voice, which, however, is seldom exerted.

At the head of this magnificent group of birds stands the RED AND BLUE MACCAW, (*Macrocerus Macao*,) as the largest, and certainly one of the most ornamented. In length it measures three feet, the tail occupying nearly two thirds of the whole. The general plumage is of a deep scarlet, the quills being violet blue, and a band of blue occupying the space behind the shoulders. It is a native of Brazil.

The RED AND YELLOW MACCAW, (*Macrocerus Aracanga*,) the BLUE AND YELLOW MACCAW, (*M. Ararauna*,) the MILITARY MACCAW, (*M. militaris*,) are also beautiful species.

We shall conclude our sketch of the *Psittacidæ* with the Cockatoos, a group peculiar to India, Australia, and the Indian archipelago. The Cockatoos resemble the maccaws in the strength and curvature of the bill; it is, however, shorter, and in a genus confined to New Holland it is much contracted in length, its elevation being increased in proportion. The head is ornamented with a crest capable of being raised up or lowered at pleasure; the tail is short and square, and the eyes are encircled by a very narrow space of naked skin. The general colour is pure white, except in the New Holland genus

referred to, (*Calyptorhynchus*, Vigors,) the species of which have the ground colour nearly black.

In manners and disposition the Cockatoos bear much resemblance to the maccaws, being usually very gentle. One of the most beautiful is the ROSE-CRESTED COCKATOO, (*Plyctolophus rosaceus*,) a native of Sumatra and



THE ROSE-CRESTED COCKATOO.

the Moluccas. Its colour is pure white, with a tinge of yellow on the lower wing and tail-coverts; the crest is composed of long plume-like feathers, the under ones being of an orange red; the bill is bluish black. In captivity it is very fond of being noticed, and of throwing itself into a variety of attitudes, raising its crest, and uttering an incessant and overpowering scream of exultation.

A still more beautiful bird is the GREATER SULPHUR-CRESTED COCKATOO (*Plyctolophus galeritus*) of New

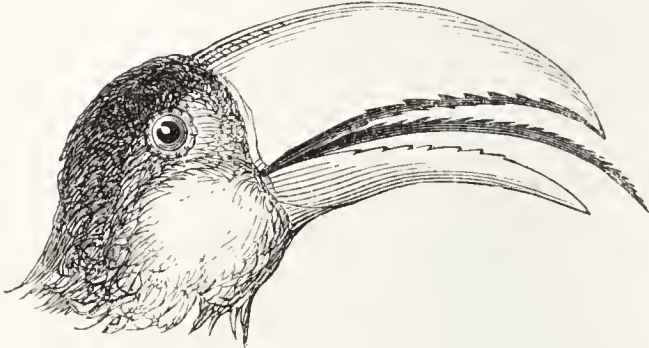
Holland. With the exception of its long curled crest of deep sulphur yellow, the plumage is white, the inner barbs of the quill-feathers and the under tail-coverts having a tinge of yellow. “ These Cockatoos are met with in large flocks on the banks of several rivers of New South Wales, but are shy, and not easily approached. They make their nests in the rotten limbs of trees, of nothing more than the vegetable mould formed by the decayed parts of the bough; and lay no more than two eggs at a time, which are white, and without spots. The situation of these nests is readily discovered by the conspicuous heaps that lie upon the ground beneath some adjoining tree, from which the old birds cut a quantity of small branches when their young are nearly fledged, strip off their bark, and dividing it into shreds, deposit it in heaps upon the ground. Their breeding places appear to be local, and the flesh of the young is said to be good eating.”

Of the genus *Calyptrorhynchus* the species of which are said to feed much on roots, the BANKSIAN COCKATOO (*C. Banksii*) may be noticed as an example. General colour black, the head and wing-coverts being dotted with reddish brown or buff; the outer tail-feathers scarlet in the middle, barred and tipped with black; the crest consisting of short broad feathers, and but slightly under the control of the will. Length about two feet. Here our survey of this singular family may be closed.

Another as remarkable and as interesting claims attention. It comprises a group of birds peculiar to South America, distinguished as much by the beauty of their colours as by the magnitude and form of the beak. The family alluded to is that of the Toucans, (*Ramphastidae*.)

If the reader refers back to the Hornbills, (*Buceros*,) with which the sketch of the Conirostral tribe of the order Insesores was concluded, he will there find to what an extent this organ, the beak, may be developed; he will here meet with it again bearing nearly as disproportionate a size to the body of the birds in the group at present before him. Between the Hornbills and Toucans there is, in fact, a certain degree of affinity; though they differ

widely in many essential points. To say nothing of the zygodactylous feet of the Toucans, the tongue is composed of a long, firm, narrow cartilage, fringed along each side with a continued barb of fine slender processes, directed forwards, and becoming longer towards the tip ; this long feathered tongue is exchanged in the Hornbill for a short thick tongue at the very back of the throat. The beak



HEAD OF TOUCAN.

of the Toucans is destitute of any protuberant excrescences ; it is deep, long, gently arched, and irregularly dentated along its margins. The texture is very light, the external surface consisting of a semitransparent plate of horn, as thin almost as paper ; the internal structure being cellular. In many species the bill is as long as the body. The wings are rounded, and ill formed for rapid flight. The trees are essentially the abiding place of the Toucans ; among the branches they display great activity, springing with vigorous leaps from bough to bough, at the very summit of the loftiest trees. D'Azara states that they are to a certain extent omnivorous, living a great part of the year on fruits, but during the breeding season attacking the smaller birds in their nests, and devouring their eggs or their young. Even the eggs and young of the maccaws and other large birds often fall victims to their carnivorous propensities. The breeding season, with the consequent facilities of procuring this kind of diet being passed, they are content with fruits. Their flight is low, heavy, and horizontal ; while on the wing, the point of the beak is raised and directed forwards, so as to form as little an impediment as possible.

The tongue, from its structure and inflexibility, cannot, it is evident, be used to turn the food, or guide it into the



THE TOUCAN.

gullet ; hence it is that on seizing any morsel, they throw it with a jerk into their widely distended throat, and swallow it. They are usually seen in groups of ten or twelve together, hopping among the branches of the tallest trees with great agility, and ever in motion. They build in the hollows of trees, and lay but two eggs at a time. Dr. Such says he has seen them frequently engaged in quarrels with the monkeys, which were doubtless anxious

to have the privilege of poaching to themselves. A wild fruit called the toucan-berry is a part of their diet. In the first volume of the *Zoological Journal*, p. 484, is an account of the manners of a Toucan recently living in this country. “ Besides occasionally a small bird, bread, eggs, and vegetables constituted his diet ; to animal food he always gave a decided preference.” When settling to roost, the writer notices that the tail-feathers were retroverted upon the back, and the beak plunged amid the soft plumage of the back, the head being turned over the right shoulder ; in this position the bird resembles an oval ball of feathers.

The Toucans are divided into two genera, the true Toucans (*Ramphastos*) and the Araçaris (*Pteroglossus*).

The Toucans have the tail square, and the beak smooth and ample ; their ground colour is generally black ; the throat, chest, and tail-coverts being of a rich or lively hue. Among the most beautiful is the *Ramphastos dicolorus*. The plumage is black, the throat being golden yellow, and a broad band on the chest, together with the upper and under tail-coverts, red. Another fine species, the *R. culminatus*, has the throat pure white. The species are too numerous to be individually given in detail.

The Araçaris have the beak more contracted in its dimensions than the Toucans, and more solid, the edges are also more deeply serrated ; the tail is longer and graduated. The predominant colour of the body is olive green. Out of the many beautiful examples which this section contains one only will be mentioned, which is recently made known to science. The CURL-CRESTED ARAÇARI. (*Pteroglossus ulocomus*.) This splendid bird is a native of the forests of Brazil, and appears to be of extreme rarity. The head is covered with a crest of curled metal-like feathers, of a glossy jet black, consisting of flat expanded shafts, without barbs. The feathers of the cheeks are also expanded at their tips in a similar manner ; their colour is white, except at the tips, which are black. The top of the back and upper tail-coverts are deep red ; the chest is yellow, with slight bars of red at irregular

intervals. The flanks are yellow, with broad stains of red. The middle of the back, wings, and tail are olive



THE CURL-CRESTED ARAÇARI.

green, the quill-feathers being brown. The bill is stained with longitudinal ribands of yellow, red, and dull blue, blending at their edges. Length eighteen inches.

The zygodactylous birds may be concluded with a small group which leads to the next order, namely, the Gallinaceous, having features which ally it to a family termed Curassows, of which we shall speak hereafter.

The group now before us is that of the Touracos (*Corythair*) and Plantain Eaters (*Musophaga*.) The Touracos are natives of Africa, where they dwell in the woods, among the branches, feeding on succulent fruits, and possessing great agility. In this respect, as also in their feeble powers of flight, they much resemble the toucans. In captivity their manners are gentle and



THE TOURACO.

familiar; their voice is sonorous. The beak is short, convex above, laterally compressed, slightly arched, and serrated at the edges; nostrils at the base of the upper mandible. The head is graced with a flattened crest of silky feathers. The wings are short; the tail long, and slightly rounded. The outer toe behind versatile. The Touracos breed in hollow trees, where they also roost at night. Four species are known; of these the *Corythair Persa* is selected as our example. This beautiful bird is a native of Southern Africa. The general plumage is a

rich bluish green, the quill-feathers being of the richest crimson. In size it equals a wood pigeon or partridge.

The Plantain Eaters (*Musophaga*) are distinguished from the touracos chiefly by the base of the upper mandible being swollen, so as to rise above and encroach upon the forehead, and by the nostrils being placed in the middle of the beak. One species is all at present recognised (*Musophaga violacea*.) It is a native of Guinea and Senegal; the fruit of the banana is its principal food. The skin encircling the eyes is naked and red; above this passes a white streak; the general plumage is of a deep violet colour, the back of the head and the quill-feathers being crimson.

In closing our notice of the Zygodactylous order, we would observe that they afford striking and abundant evidences of the wisdom and power of God.



THE RED-BELLIED TROGON.

[For the description of which, see page 287.]

ORDER IV.

THE GALLINACEOUS, OR RASORIAL ORDER.

RASORES, *Vigors*.

THE general characters of the Rasorial order are sufficiently clear and distinct, so as to render its boundaries settled. The birds comprising it are all granivorous, feeding upon vegetable diet exclusively, or at least nearly so, for in some species the young are fed upon the larvæ of ants, in addition to grain or berries. They are all terrestrial in their habits; some, indeed, exclusively so, being incapable of rising from the ground from the rudimentary condition of their wings. The body is stout, plump, and heavy, and, with certain exceptions, the wings are round and concave, rendering flight slow and laborious. The limbs are generally strong and muscular, and the hind toe, instead of being placed on a level with the anterior part of the foot, as we always see in the birds of the Insessorial order, is more or less elevated on the tarsus, so that in many examples its point only touches the ground, and sometimes not even that; while in others it is wanting entirely. In accordance with the nature of the food, the beak is strong and horny; but at its base there is a space covered with a tough membrane, in which the nostrils are situated.

We have often observed how one group blends at different points into others, and the more rigorous the examination, the more in number and the more palpable will these points of relationship appear. The first family of the present Rasorial order is an illustration; it is that of the PIGEONS, (*Columbidæ*.) Its characters are as follow: beak moderate, compressed, furnished at the base with a tumid and soft membrane, in which the nostrils are placed, and more or less bent at the tip. Toes four. Tail generally consisting of twelve feathers.

The Pigeons, or at least the Pigeons properly so called, with one or two exceptions, unite in themselves arboreal and terrestrial habits. Their tarsi are short, and in one genus feathered to the toes. They take up their abode in woods, building high upon the branches, or in the hollows of time-worn trees; their wings are pointed, and their powers of flight of the highest grade; the swift winged falcon must strain itself to overtake them. In these habits of perching and nidification, connected with the shortness of the tarsi, and the vigorous powers of flight, may be traced on the one hand an alliance to various groups of the Insessorial order; while, on the other hand, in food, and manner of taking it, in the structure of the gizzard, and in general anatomical organization, they prove their title to the situation assigned them in the present order, to the more typical forms of which they are strongly linked by a series of gradations.

The family *Columbidæ* is spread through every part of the globe; many are migratory. “They pair together with the strictest constancy, the male and female sharing between them their common nest, and the care of the progeny which it contains. The female lays twice a year, and generally two eggs at a time, on which she sits alternately with the male, who takes her place for several hours during the day, while she is absent in search of food. When the young are first hatched, they are unfledged and blind, and consequently unable to provide for themselves. This task the parents fulfil,” disgorging at first a milky fluid, (the secretion of peculiar glands in the crop,) adapted to the digestive powers of the nestlings, afterwards grain softened in the crop. Their care over their young is unremitting; these are generally male and female, and, being brought up together, continue united during life.

Four species of Pigeon are indigenous in the British isles; of these the first, and by far the largest, is the RING DOVE, Cushat, or Queest, (*Columba Palumbus*, LIN.) It is distinguished by the patch of white on each side of the neck, the upper surface being bluish gray,

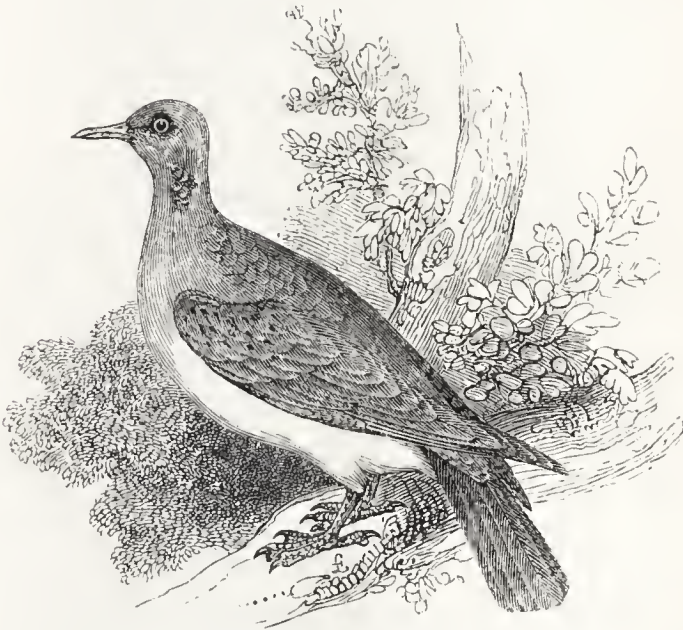
the under parts vinous ash colour. It remains in England during the whole of the year, and is common in all well wooded districts. It is not susceptible of domestication, and will not even breed in captivity, as many unsuccessful trials have proved. In winter, vast flocks collect together and spread over the open fields during the day in search of food, returning to the woods to roost as night comes on. Their flesh is excellent, and multitudes are sent annually to the London markets.

The second species is the STOCK DOVE, (*Columba ~~Ænas~~*,) a bird resembling the Ring Dove in habits and manners, being a constant inhabitant of woods, and breeding in the hollows of old trees and on the tops of pollards. In size, however, it is much less, and wants the white patch on the neck. The parts above are deep bluish gray; a broad black band terminates the tail; the under parts are gray, with a tinge of purple. The Stock Dove has till lately been considered as the origin of the numerous domestic varieties which ornament our poultry yards, but erroneously; it is essentially a distinct species, differing in habits and instincts.

Our domestic breeds are the descendants of the third species, namely, the ROCK DOVE, or Biset, (*Columba livia*,) a bird which, instead of inhabiting woods in the interior of the country, gives a preference, in its wild state, to the rocks which border the sea. It is universally spread in the old world, and is very abundant in the rocky islands of the Mediterranean, and along the northern coast of Africa. In Britain, it breeds on the high cliffs of the shore in Wales, and in the cavernous recesses of the rocks in the Orkneys, and in various other localities. Church steeples and towers near the coast are also among its dwelling-places; and even in the interior of the country, pigeons which have resumed their freedom and independence are often tenants, in company with daws and starlings, of ruined buildings. Though very much resembling the stock dove, the Rock Pigeon may be at once distinguished by the white colour of the rump, and by

two distinct bands of bluish black across the wings. These marks are more or less maintained through all our domestic varieties; or, indeed, if by the breeder's art they become extinct for a generation or two, they are ever ready to break out again, often to the disappointment of the fancier, whose aim seems to be to distort nature, as if such distortions were truly beautiful. These three species are permanent residents of our island, as well as of a great portion of the European continent.

The fourth species is a summer bird of passage; it is the celebrated **TURTLE DOVE**. (*Columba Turtur*.) This



THE TURTLE DOVE.

interesting species is widely disseminated, being spread not only through the middle and southern provinces of Europe, but through the greater portion of Africa and Asia. In the British isles it is, however, limited in its places of residence. In Kent it is the most abundant, and is also tolerably common in the southern and midland counties, but it is scarce in the northern and western parts of the island. In Europe, and the adjacent parts of Asia, it appears to be universally migratory, hence “the voice of the Turtle” is one of the confirmations of the

return of spring as it was in the days of Solomon. “For, lo, the winter is past, the rain is over and gone; the flowers appear on the earth; the time of the singing of birds is come, and the voice of the Turtle is heard in our land.” Song Sol. ii. 11, 12.

The beginning of May, when nature is clad in her freshest robes of beauty, is the period in which the plaintive cooing notes of the Turtle are first heard in the solitary recesses of our woods, harmonising with the shriller melody of a thousand warblers, and adding to the soulfelt emotions, which the budding of trees and the opening of flowers, the music and the odours of spring, reviving from the deathlike trance of winter, conspire to awaken. The stay of the Turtle is, however, very short: early in September, before the “sear and yellow leaf” of autumn gives token of the waning year, it takes its departure for a warmer climate.

With us, it breeds only once in the season, building on the branches or among the clustering ivy of aged trees a shallow loosely constructed nest of sticks and twigs. The eggs are two, and of a pure white. It generally happens that several pairs, invited by the seclusion of the place, (the densest part of the wood,) form a sort of colony, building their nests on adjoining trees or close together on the same. From this retreat they pay a morning and evening visit to the open cultivated fields in quest of food, grain and peas being their diet; the latter are especially relished, so that flocks of these birds are regularly to be seen going and returning to the pea-fields when the peas are ripe.

Independent of the elegance of its shape, the Turtle is a most beautiful bird. In length it is about eleven inches; the tail is slightly graduated; the upper part of the head and neck is ashy gray, with a pearly tinge; the back is brown; the wing-coverts are dusky brown in the centre, with a border on each feather of reddish brown inclining to rufous; smaller wing-coverts gray; quill-feathers brown; tail-feathers dusky brown, all, except the two middle, being tipped with white. The sides of the neck are marked by a patch of small stiff black feathers, with white margins;

breast bright chocolate ; under surface pure white. The young birds are destitute of the patch of peculiar feathers on the sides of the neck.

The Turtle Dove has been a favourite in all ages and in all countries : its innocence, its beauty, its attachment to its mate, its plaintive soothing voice, even the very time of its appearance, all conspire to give it interest. It has been universally chosen as the emblem of peace, of harmony, and fidelity ; its very presence denotes, in the language of poetry, quiet and happiness. Hence Virgil, in numbers as soft as its voice, paints a scene of rural tranquillity, to which it adds the charm of its presence.

“ Hinc altâ sub rupe canet frondator ad auras.
Nec tamen, interëa, raucæ, tua cura, palumbes
Nec gemere aëriâ cessabit *Turtur* ab ulmo.

VIRGIL, *Ecl.* i.

Beneath yon cliff the blithe vine-dresser there
Shall sing his light song to the echoing air ;
Meanwhile, the queest yon lofty elms among
Shall hoarsely coo, the *Dove* his tale prolong,
Your favourite birds. M.

But leaving the allusions to it which we meet with in other works, we cannot omit to observe that it is one of the birds especially noticed in the Holy Scriptures, perhaps more so than any other. The first mention of it is in Genesis viii. Noah, in order to ascertain the degree to which the deluge had subsided, sent out, as it will be recollected, first a raven, which meeting probably with food among the mingled exuviæ floating on the waters, felt no inclination to return to the ark ; but besides the raven, “ he sent forth a dove from him, to see if the waters were abated from off the face of the ground ; but the dove found no rest for the sole of her foot, and she returned unto him into the ark ; for the waters were on the face of the whole earth. Then he put forth his hand, and took her, and pulled her in unto him into the ark. And he stayed yet other seven days, and again he sent forth the dove out of the ark. And the dove came to him in the evening, and, lo, in her mouth was an olive leaf plucked off : so Noah knew that the waters were abated

from off the earth. And he stayed yet other seven days, and sent forth the dove, which returned not again unto him any more." Gen. viii. 8—12.

In Leviticus the Turtle Dove is mentioned as among the trespass-offerings according to the Mosaic dispensation; offerings typical of the sacrifice for sin upon Calvary of Him who was "holy, harmless, and undefiled." Its plaintive voice is alluded to in Isaiah xxxviii. where Hezekiah says, "I did mourn as a dove." The Psalmist also, in reference to its rapidity of flight and habits of migration to a sunny climate on the approach of winter, exclaims, "Oh that I had wings like a dove! for then would I fly away, and be at rest: lo, then would I wander far off, and remain in the wilderness: I would hasten my escape from the windy storm and tempest." Ps. lv. 6—8.

Jeremiah reproaches the stubbornness and ignorance of the Jewish nation, by pointing to the migratory birds which obey the laws of their Creator in the observance of their appointed seasons, and says, "the turtle and the crane and the swallow observe the time of their coming, but my people know not the judgment of the Lord." Jer. viii. 7.

But leaving the Old Testament, where the allusions to the dove are very numerous, and many (as for example the passage above quoted from the Psalms) of exquisite beauty, we find the dove equally noticed in the New Testament. The blessed Jesus sending forth his disciples to preach, saying, "The kingdom of heaven is at hand," gives them this warning, "Behold I send you forth as sheep in the midst of wolves: be ye therefore wise as serpents, and harmless as doves." Matt. x. 16.

But the Dove, besides these testimonies in its favour, by which we are naturally inclined to regard it with interest, is mentioned in allusion to the visible appearance in which the Holy Spirit was seen to descend upon the Redeemer at his baptism: "And lo, the heavens were opened, and he saw the Spirit of God descending like a dove, and lighting upon Him." Matt. iii. 16. See also Mark i. 10; Luke iii. 22; and John i. 32: "And John bare record, saying, I saw the Spirit descending from heaven like a dove, and it abode upon him."

Reader, when you see the Dove, let it call to mind these passages of holy writ, and in your own meditations follow them out through all their bearings ; the Dove will not be seen then without even spiritual profit. We would add also, let it be a pattern to you of gentleness, meekness, truth, and obedience to the laws of your heavenly Father, who has laid down a better defined and surer course for you than for the turtle, the crane, and the swallow. Remember, too, that, like them, you are, while on earth, a sojourner in a strange land, your brighter home being in another sphere, where “thy sun shall no more go down, neither shall thy moon withdraw itself;”

Where “ everlasting spring abides
And never-withering flowers.”

Thither at the appointed time will believers in Jesus, those who are faithful unto death, speed their heavenward flight, and leave earth’s wintry scenes, the storm and the tempest, far behind.

Another beautiful species of Turtle Dove from Africa, the COLLARED TURTLE, (*Columba risoria*,) is often kept in aviaries, or in cages, breeding freely in captivity. It is of a pale fawn colour, with a black crescent-shaped mark on the back of the neck.

New Holland possesses many species of pigeon, and some of singular beauty, having their plumage of a metallic lustre ; such for example is the BRONZE-WINGED PIGEON, (*C. Chalcoptera*,) and the MAGNIFICENT PIGEON, (*C. magnifica*.) The Magnificent Pigeon is a large species, being sixteen inches in length. The plumage above is fine golden green, the wing-coverts being spotted with yellow ; the head is ash-coloured ; the secondary quill and tail feathers are deep changeable green ; the upper part of the chest violet purple ; breast and under parts sapphire green.

India and the isles adjacent also possess most beautiful species of the present family. Among these are a group termed *Vinago*, with short tarsi feathered to the toes, and

a bill more robust and firm than ordinary: the toes are large, and of an arboreal character. The birds of this genus live exclusively in dense woods, feeding on fruits and berries. They form the immediate link connecting the pigeons to the Insessorial order. The AROMATIC PIGEON, (*Vinago aromatica*, VIEILL.) the MILITARY PIGEON, (*V. militaris*,) and many others, are examples.

When we turn to America we also find that vast continent claiming its indigenous examples. Of these we may notice the beautiful little GROUND DOVE, (*Columba passerina*,) one of the least of the pigeons, being only six inches long. "These birds," says Wilson, "seem to be confined to the districts lying south of Virginia; they are abundant on the upper parts of Cape Fear River, and in the interior of Carolina and Georgia." "They never congregate in such multitudes as the common wild pigeon, or even the Carolina pigeon, but, like the quail or partridge, frequent the open fields in small coveys. They are easily tamed, have a low, tender, cooing note, accompanied with the usual gesticulations of the tribe. The Ground Dove is a bird of passage, retiring to the islands and to the more southerly parts of the continent on the approach of winter, and returning to its former haunts early in April. It is of a more slender and delicate form, and less able to bear the rigours of cold, than either of the other two species common in the United States, both of which are found in the northern regions of Canada, as well as in the genial climate of Florida." The general plumage above is ashy brown, the hind part of the head being purple, and the scapulars of the same colour, but not so rich; throat and breast vinous purple, each feather having its edge strongly defined by a semicircular outline; under parts vinous gray.

Of all the pigeons of America, the PASSENGER PIGEON, (*C. migratoria*, LIN.) or Wild Pigeon, as it is there called, is the most remarkable. The accounts given of the prodigious multitudes in which it constantly associates, and of its migrating in droves of myriads, have been confirmed by the most credible testimony, though, as Wilson

observes, they have no parallel as it regards “any other of the feathered tribes on the face of the earth with which naturalists are acquainted.”

The Passenger Pigeon is spread throughout the greatest portion of North America, from Hudson’s Bay over



THE PASSENGER PIGEON.

Canada, as far south as the Gulf of Mexico, but especially abounds in the wooded districts of the States. Of the wonderful powers of flight with which this beautiful bird is endowed we may form some idea from a statement of Audubon, who affirms that “Pigeons have been killed in the neighbourhood of New York with their crops full of rice, which they must have collected in the fields of Georgia and Carolina, these districts being the nearest in which they could possibly have procured a supply of the food. As their power of digestion is so great that they will decompose food entirely in twelve hours, they must in this case have travelled between three and four hundred miles in six hours, which shows their speed to be at an

average about one mile in a minute. A velocity such as this would enable one of these birds were it so inclined to visit the European continent in less than three days."

The same writer also well describes the migrations of these birds from their summer residence and breeding-place in search of food; the breeding-place, be it observed, is in the bosom of the beech-woods, occupying an area of many miles. "Not far from Shelbyville, in the state of Kentucky, about five years ago," says Wilson, "there was one of these breeding-places which stretched through the woods in nearly a north and south direction, was several miles in breadth, and was said to be upwards of forty miles in extent! In this tract almost every tree was furnished with nests wherever the branches could accommodate them. The pigeons made their first appearance there about the 10th of April." Audubon observes, that a hundred nests or more are frequently to be seen on one tree, and that the number of eggs contained in each is two. The rearing of the young being completed, and, as may be well imagined, the beech-woods being cleared of the fallen mast, and the adjacent country despoiled of its grain, the flocks, increased by these additions to their number, leave the place till the ensuing season. Urged by the necessity of procuring a due supply of food, they traverse the country, lighting in the midst of abundance, and abandoning the spot when it no longer affords a supply. "In the autumn of 1813," says Audubon, "I left my house at Henderson, on the banks of the Ohio, on my way to Louisville. In passing over the barrens, a few miles beyond Hardensburg, I observed the pigeons flying from north-east to south-west in greater numbers than I thought I had ever seen them before, and feeling an inclination to count the flocks that might pass within the reach of my eye in one hour, I dismounted, seated myself on an eminence, and began to mark with my pencil, making a dot for every flock that passed. In a short time, finding the task I had undertaken impracticable as the birds poured in in countless multitudes, I rose, and counting the dots then put down found that a hundred

and sixty-three had been made in twenty-one minutes. I travelled on, and still met more the farther I proceeded. The air was literally filled with pigeons; the light of noonday was obscured as by an eclipse; the dung fell in spots not unlike melting flakes of snow, and the continued buzz of wings had a tendency to lull my senses to repose." These flocks increased as he proceeded, but flew beyond rifle-shot, and were even undisturbed by the report of the discharge. "I cannot," he adds, "describe the extreme beauty of their aerial evolutions when a hawk chanced to press upon the rear of a flock. At once like a torrent, and with a noise like thunder, they rushed into a compact mass, pressing upon each other towards the centre. In these almost solid masses they darted forward in undulating and angular lines, descended and swept close over the earth with inconceivable velocity, mounted perpendicularly so as to resemble a vast column, and when high were seen wheeling and twisting within their continued lines, which then resembled the coils of a gigantic serpent." For three days the pigeons were passing in one vast stream, impregnating the air with their peculiar odour. As they passed the Ohio they flew lower, and then multitudes were slaughtered, and for a week "the population fed on no other flesh than that of pigeons, and talked of nothing but pigeons."

Of the number of pigeons contained in one of these mighty flocks, and of the quantity of food such a flock must daily consume, both Wilson and Audubon have made calculations. "Let us," says the latter author, "take a column of one mile in breadth, which is far below the average size, and suppose it passing over us without interruption for three hours, at the rate above mentioned, of one mile in a minute. This will give us a parallelogram of one hundred and eighty miles by one, covering one hundred and eighty square miles. Allowing two pigeons to the square yard, we have 1,115,136,000, or one billion, one hundred and fifteen millions, one hundred and thirty-six thousand pigeons in one flock! As every pigeon daily consumes fully half a pint of food, the quantity necessary for supplying this vast multitude must

be eight millions seven hundred and twelve thousand bushels per day !” This is below Wilson’s calculation, who gives three pigeons to the square yard. Yet this vast horde is fed by Him who multiplied the loaves and fishes for the multitude, and who satisfieth “the desire of every living thing.”

Before alighting on the ground which offers an abundant repast, the flocks wheel round and round, and describe various beautiful evolutions, presenting now a sheet of fine blue, now of deep purple, as the upper or under surface of the living mass is presented to the eye. Having settled, they feed with great avidity, turning over every leaf, and passing along in ranks ; thus, for miles, the forest is completely gleaned of the fallen mast before mid-day, when they settle on the trees to repose till sunset, at which period they depart *en masse* for the nightly roosting place, which is not unfrequently hundreds of miles distant. The roosting place and breeding place are quite distinct. Audubon rode through one of these roosting places, more than three miles in breadth and forty in length, on the banks of the Green river in Kentucky. “My first view of it,” he says, “was about a fortnight subsequent to the period when they had made choice of it, and I arrived there nearly two hours before sunset. Few Pigeons were then to be seen ; but a great number of persons with horses and wagons, guns and ammunition, had already established encampments on the borders. Two farmers from the vicinity of Russelsville, distant more than a hundred miles, had driven upwards of three hundred hogs to be fattened on the Pigeons which were to be slaughtered. Here and there the people employed in plucking and salting what had been already procured, were seen sitting in the midst of large piles of these birds. The dung lay several inches deep, covering the whole extent of their roosting place, like a bed of snow. Many trees, two feet in diameter, I observed, were broken off at no great distance from the ground ; and the branches of many of the largest and tallest had given way, as if the forest had been swept by a tornado. Every thing proved to me that the number of birds resorting to this part of

the forest must be immense beyond conception. As the period of their arrival approached, their foes anxiously prepared to receive them. Some were furnished with iron pots containing sulphur, others with torches of pine-knots, many with poles, and the rest with guns. The sun was lost to our view, yet not a Pigeon had arrived. Every thing was ready; all eyes were gazing on the clear sky, which appeared in glimpses amidst the tall trees. Suddenly there burst forth a general cry of ‘Here they come!’ The noise which they made, though yet distant, reminded me of a hard gale at sea passing through the rigging of a close reefed vessel. As the birds arrived and passed over me, I felt a current of air that surprised me. Thousands were soon knocked down by the pole-men. The birds continued to pour in. The fires were lighted, and a magnificent as well as wonderful and almost terrifying sight presented itself. The Pigeons, arriving by thousands, alighted every where, one above another, until solid masses as large as hogsheads were formed on the branches all around. Here and there the perches gave way under the weight, with a crash, and falling to the ground, destroyed hundreds of the birds beneath, forcing down the dense groups with which every stick was loaded. It was a scene of uproar and confusion. I found it quite useless to speak or even to shout to those persons who were nearest to me. Even the reports of the guns were seldom heard, and I was made aware of the firing only by seeing the shooters reloading.”—“No one dared venture within the line of devastation.” The collecting the dead and wounded birds was left for the morning’s employment; and till near sunrise this work of slaughter continued. At this period the pigeons began to move off in a direction different to that by which they entered the forest the preceding evening, “and before sunrise all that were able to fly had disappeared. The howlings of the wolves now reached our ears, and the foxes, lynxes, cougars, bears, raccoons, opossums, and polecats were seen sneaking off, whilst eagles and hawks of different species, accompanied by a crowd of vultures, came to supplant them and enjoy their share of the spoil.” It is not, however, only in their

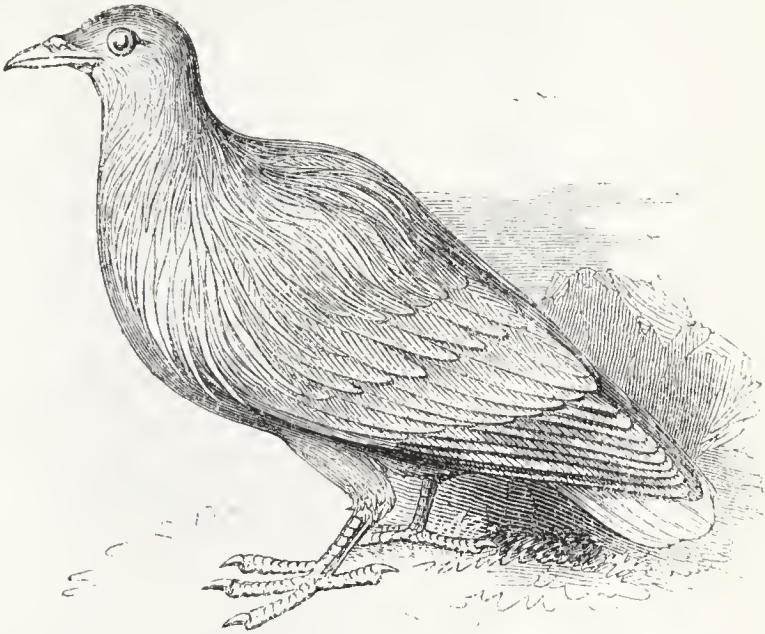
roosting places that these pigeons are attacked, but in their breeding places also ; the young, when just about to leave the nest, being highly esteemed for food. In order to procure these, whole trees are felled, which in their fall strip off the branches, covered with nests, of those adjacent, and so dash the young to the ground. In this manner multitudes are destroyed ; yet, wherever mighty woods afford them shelter and subsistence, these flocks not only recruit their losses, but appear even to increase ; and Audubon observes that “ they not unfrequently quadruple their numbers yearly, and always at least double them.”

The Passenger Pigeon is a beautiful bird. The general colour of the upper parts is grayish blue ; the two middle tail-feathers are blackish, the rest blue, fading into white. The throat, breast, and sides light brownish red, burnished with gold, green, and crimson ; the remainder of the under surface whitish ; length sixteen inches.

The close union which exists in many points between the Pigeons (*Columbidæ*) and the insessorial order, has already been hinted at, and the true arboreal habits of the genus *Vinago* have been noticed as evidently stationing that group among the intervening links through which the transition passes. We shall now see how the Pigeons merge insensibly into the essentially rasorial group, that of the fowls, turkeys, and pheasants, (*Phasianidæ*, VIG.)

In the *Columbidæ* may easily be recognised a group provided with strong, coarse, and elevated tarsi, adapted for terrestrial habits, and with short and rounded wings, ill adapted for flight, conjoined with a bulky body. And on inquiring into the habits of these birds, we find them breeding on the ground, and laying several eggs ; and that the young, when hatched, are covered with down, instead of being naked, and follow their parents like chickens or young partridges. To this group Le Vaillant gave the expressive name of “ *Columbi-gallines*,” that is, *Pigeon-fowls*. Our first example, though truly terrestrial, and one of the links of transition, still has much of the pigeon in its appearance. It is the NICOBAR PIGEON, (*Goura Nicobarica*, TEM.) a native of the Moluccas,

and distinguished by its refulgent plumage. The head is dull slate colour, with a tinge of purple; the neck is ornamented with long flowing pointed feathers of a rich green, with coppery reflections; the covert-feathers of the wings



THE NICOBAR PIGEON.

are also pointed; the whole of the upper surface is burnished with bronze and steel blue reflections on glossy green; the under surface is the same, but not quite so intensely brilliant; the tail, which is very short and square, is pure white; the beak is carunculated at the base; its size is that of the common wood-pigeon or ring-dove.

Our last example has so little of the pigeon in its general appearance, that no one would at first conceive it to belong to that family. The limbs are those of a fowl or turkey, so are the wings; the tail is large and spreading, and the head is surmounted by a flat fan-like crest of slender feathers, with loose barbs. In size, too, it equals a moderate turkey, and is reared in Java in a state of domestication. This bird is the CROWNED PIGEON of the Indian Archipelago, (*Lophyrus coronatus*, VIEILL.) Of this magnificent species several examples have been lately living in the menageries of this country. In its

manners it much resembles our poultry, walking about with firm stately steps, and with its beautiful crest expanded. In India and the islands adjacent it is sometimes kept



THE CROWNED PIGEON.

tame in the court yards, among other poultry; and Sir G. Staunton, in his “Embassy to China,” notices it under the title of the Crown Bird, as being very familiar. Its voice, though plaintive, is loud and sonorous. Its general colour is a deep slate blue, with a patch of maroon and white on the wing. The quills and tail are blackish ash, the latter being paler at its tip.

Having thus sketched out the *Columbidæ* to the point at which they unite with the true gallinaceous birds, we shall now take up this latter group, called, from its comprehending the pheasant tribes and their allies the wild jungle-fowls, the family *Phasianidæ* (Vig.)

The members of this natural and well-marked group, though differing among each other in minor details, are all bound together by strong ties of affinity. They are all characterized by strength of limb and bulkiness of body, while at the same time the wings are short, rounded, and concave. Though most, perhaps, roost upon trees, all seek their food on the ground; this consists of grain,

seeds, roots, and buds, but insects are not rejected, and in some species they form a considerable and essential portion of the food of the young. Their digestive organs are in strict adaptation to the nature of their diet. A spacious crop first receives the grain, whence after due maceration it is conducted to the gizzard, the walls of which are composed of a strong dense muscle, and lined internally with a thick coriaceous membrane. By the grinding action of the gizzard the food is reduced to a pulp; and in order to facilitate this, the birds swallow small stones, pebbles, and sand; which, indeed, are essential to the thorough grinding of their food, and consequently to the maintenance of health.

The peculiar habit of scratching up the ground with the feet, and of rolling in the dust, and working it in among the feathers, is a circumstance which all have noticed.

As it respects their nidification, most, if not all, build their nests on the ground, and rear a numerous brood, which, on being excluded from the eggs, are covered with down, and follow their parents, who conduct them to their food, which they pick up themselves; hence they less require the fostering care of their parents than birds in general.

There is one circumstance which renders the present family of no ordinary interest; it is, that it furnishes to man the largest proportion, and the most valuable, of the domestic poultry of his courtyard; the pea-fowl, the turkey, the guinea-fowl, the innumerable varieties of the common fowl, are all members of this group. Of their utility as food, nothing need be said; nor of the animation and ornament they impart to the farm-yard, and the precincts of our country houses.

Amongst the subordinate groups into which the family *Phasianidæ* is divided, the first which demands our notice is that of the *Curassows*. The Curassows have been formed into a distinct family, (under the name of *Cra-cidæ*,) but apparently upon very slender grounds, as they possess all the essential characters of the family; they do not, however, roost on trees only, but build their nests there, choosing the topmost branches of the tallest. When

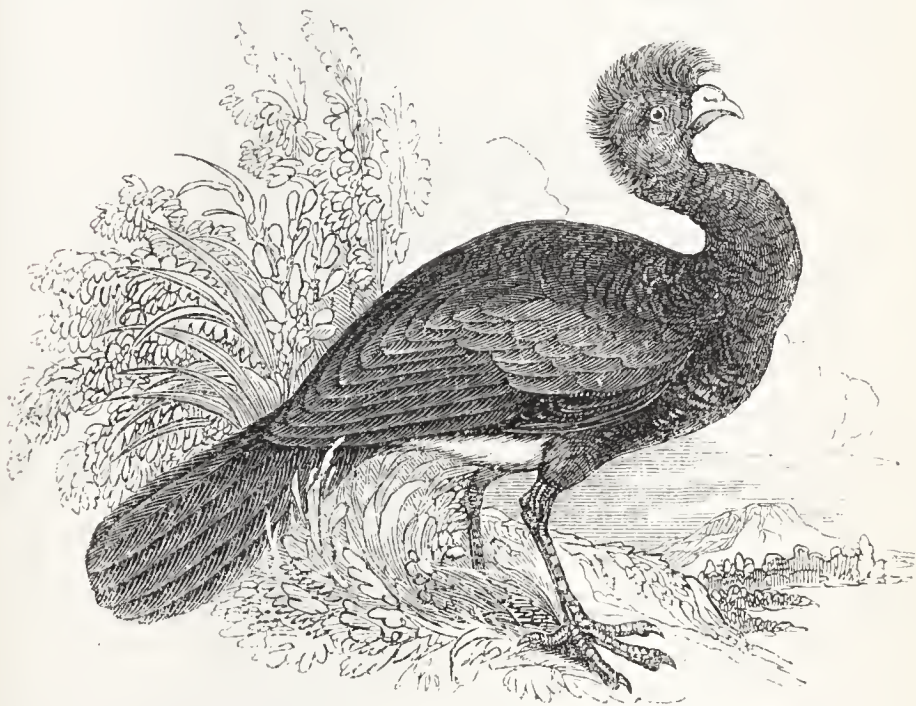
speaking of touracos, (*Corythaix*,) that group was regarded as having features which allied it to the birds now before us ; and if we examine the shape of the bill, the general contour of the body, the shortness of the wings, and the length and breadth of the tail, this similarity will be very apparent. The touracos approach also in their manners to the curassows ; in short, they are their *zygodactylous* representatives.

The Curassows are birds approaching (many of them at least) our turkey in magnitude ; they are natives of South America ; the tail is ample, and composed of twelve large stiff feathers. In several species the trachea (wind-pipe) is singularly convoluted before it enters the chest. They live in woods, and feed on berries and various kinds of fruit, grain, &c. They are remarkable for tameness, and are very easily domesticated. Indeed, as a talented writer observes, “in many parts of South America they have long been reclaimed ; and it is really surprising, considering the extreme familiarity of their manners, and the facility with which they appear to pass from a state of nature to the tameness of domestic fowls, that they have not yet been introduced into the poultry yards of Europe. That with proper treatment they would speedily become habituated to the climate, we have no reason to doubt ; on the contrary, numerous examples have shown that they thrive well, even in its northern parts ; and M. Temminck informs us that they have once at least been thoroughly acclimated in Holland, where they were as prolific in their domesticated state as any of our common poultry. The establishment, however, in which this had been effected, was broken up by the civil commotions which followed in the train of the French revolution,” and the results of much labour lost by its complete dispersion. “Their introduction would certainly be most desirable, not merely on account of their size and beauty, but also for the whiteness and excellence of their flesh, which is said, by those who have eaten of it, to surpass that of the guinea-fowl, or of the pheasant, in the delicacy of its flavour.”

The Curassows are subdivided into several subordinate

groups; they may, however, on a broad survey, be resolved into *Curassows*, properly so called, and *Guan*s or *Yacows*.

The Curassows (*Crax*, LIN.) are characterized by a strong deep beak, having the upper mandible curved and vaulted from the base to the point; at the base is a cere or naked skin, often brilliantly tinted, in which the nostrils are situated. Their head is ornamented with long curled feathers, forming a graceful crest. An example of this section is the CRESTED CURASSOW (*Crax Alector*, LIN.) This beautiful bird, in its wild state, is found in



THE CRESTED CURASSOW.

Mexico, Guiana, Brazil, and other parts of South America, abounding in large flocks in the forests. Perched upon the tallest trees, they betray no uneasiness when man invades their haunts, nor indeed offer to escape by flight, on seeing their number thinned by the gun; but, as if unaware of danger, remain stationary upon their perch. The hunter and the colonist alike prize them as food; hence they are seldom to be met with in the immediate neighbourhood of settlements or villages, unless of very recent

establishment. In the mighty woods of Guiana, they are, according to Sonnini, so numerous as to constitute the never-failing resource of the traveller, whose stock of provisions may be exhausted. They are said to breed during the rainy season, building the nest (which is placed on the topmost branches of trees) of sticks and twigs, interwoven with coarse vegetable fibres, and lined with leaves; the eggs are six or eight in number, and white, like those of a fowl, but much larger. In size the Crested Curassow is little inferior to a turkey; the general colour above is a rich black with a gloss of green; the parts beneath are dull white. The feathers of the crest are about three inches in length, curled forwards, and are velvety in appearance; they are capable of being elevated or depressed at will. The cere at the base of the bill, from which a naked skin stretches around the eyes, is bright yellow.

This species is common in a domestic state in the Dutch settlements of Berbice, Essequibo, Demerara, and elsewhere, breeding freely and requiring little care. In our country, where it is kept in aviaries, it suffers, as do the rest of the group, from exposure to wet or damp, which occasions mortification and consequent loss of the toes; so that it is rare to see a Curassow, even in the well ordered gardens of the Zoological Society, which is not more or less mutilated. A dry gravelly soil, with trees on which to perch, with plenty of room and sufficient shelter, are essential to success in the endeavour to naturalize the race.

Besides the Crested Curassow, we may enumerate the RED CURASSOW, (*Crax rubra*,) the RED-KNOBBED CURASSOW, (*Crax Yarellii*, BEN.) the RAZOR-BILLED CURASSOW, (*Crax mitu*,) and the GALEATED CURASSOW, (*Crax Pauzi*.) The two latter birds have been separated by Cuvier into a genus termed *Ourax*, upon very slight differences in the character of the beak.

The *Guans* or *Yacous* (*Penelope*, MERR.) are distinguished from the true Curassows by a more slender form of bill, with the nostrils placed nearly in the centre,

and by a naked skin which hangs down beneath the throat, and is capable of considerable distention. A naked space also surrounds the eyes; the toes are strong, and furnished with stout claws; the tail is flat and ample.

Our example is the GUAN (*Penelope cristata*.) With few exceptions, the manners of the Guan are precisely



THE GUAN.

those of the Curassow; it is easily domesticated, and its flesh is accounted excellent. It does not, however, often congregate in flocks, but dwells in the forest usually with its mate alone, pairing with strict constancy. It is a native of Guiana and Brazil.

The windpipe of this bird is remarkable for the loop it forms on the breast below the skin, before it enters the cavity of the chest; this circuitous course, and the consequent elongation of the tube, renders its voice (which resembles the word *yacou*) loud and sonorous, so that the woods have been heard reechoing with its note.

In size the Guan equals a fowl, but is longer, measuring thirty inches, the tail being fourteen. The whole of the upper surface is of dusky brownish black, with a gloss of olive green. The head is surmounted with a tufted crest. The naked skin of the throat is bright scarlet; the naked cheeks purplish. The chest is regularly spotted with dashes of white, on a dusky brown ground, which is the colour of the under surface. The female has a universal tinge of reddish, but in other respects the plumage resembles that of the male.

From the Curassows we pass to the Turkeys, (*Meleagris*,) a genus of which two species only are known to exist; one the wild origin of the domestic race, the other the Honduras Turkey, a bird as rare as it is beautiful. The characters of this genus consist in the top of the head and the greater portion of the neck being destitute of feathers, the skin being carunculated and changeable in its colours. In the males, a long tuft of coarse hair hangs from the chest; the beak is stout; the tail broad; the tarsi furnished with a short blunt spur.

The COMMON TURKEY (*Meleagris Gallopavo*, LIN.) now so abundantly bred in our poultry-yards, of which it is one of the greatest ornaments, is originally from America, whence it appears to have been imported into Europe in the early part of the sixteenth century; though it must be confessed that nothing detailed or satisfactory respecting its introduction is known. In this respect, however, the Turkey is not singular, as the case applies to most of our domestic animals; yet, when we consider how recent is the date of its discovery, which probably long preceded any attempts at its domestication, we cannot but be surprised that its early history is involved in such obscurity. Indeed, the writers of the sixteenth and seventeenth centuries (and certainly not more than thirty years after its introduction) appear to have been so ignorant about it as to regard it as a bird with which the ancients were familiar, and to which they gave the name of *Meleagris*; and though with their descriptions of the *meleagris* it coincides

in no particular, it was not till about the middle of the eighteenth century that the confusion was cleared up. The meleagris of the ancients was the guinea fowl; the Greeks having given the name of meleagrides, (Μελεαγριδες,) to those birds, fabling (according to their mythology) that into them the sisters of Meleager had been transformed; the white spots with which they are covered being said to be the print marks of tears. The title, thus originally applied in error, has been since continued more from convenience, as having been generally adopted, than from its propriety.

The earliest notice of the Turkey is by Oviedo, in his Natural History of the Indies, as the intertropical regions of America were then called*; he speaks of it as a kind of peacock abounding in New Spain, “whence numbers had been transported to the islands and the Spanish main, and domesticated in the houses of the christian inhabitants.” Oviedo published his work at Toledo in the year 1526; so that for some time before this the Turkey had been reclaimed. In the fifteenth year of Henry VIII. 1524, Turkeys are reported to have been introduced into England, and then for the first time probably were so called from the confusion existing between them and the guinea fowl, which then was also rare, and which was brought from the Levant. In a short time, however, the Turkey became common throughout the whole of Europe; and in our country, as old records abundantly testify, was a standing dish at festivals and stated feasts. In its wild condition, it is still found extensively spread in North America. For the best information on this subject, the scientific world is indebted to C. L. Bonaparte and Audubon. “The native country of the wild Turkey extends from the north-western territory of the United States to the isthmus of Panama, south of which it is not to be found, notwithstanding the statements of authors who have mistaken the curassow for it. In Canada and the now densely peopled parts of the United States, wild Turkeys were formerly very abundant; but like the

* We still call the Caribbee Islands the *West Indies*, and even the aborigines of the continent *Indians*.

Indian and buffalo, they have been compelled to yield to the destructive ingenuity of the white settlers, often wantonly exercised, to seek refuge in the remotest parts of the interior;" and as colonization advances, a day may come "when the hunter will seek the wild Turkey in vain."

Audubon says that "the unsettled parts of the states of Ohio, Kentucky, Illinois, and Indiana,—an immense extent of country to the north-west of these districts upon the Mississippi and Missouri,—and the vast regions drained by these rivers, from their confluence to Louisiana, including the wooded parts of Arkansas, Tennessee, and Alabama, are the most abundantly supplied with this magnificent bird."

The wild Turkey appears to be, to a certain extent, migratory in its habits; and it is also gregarious during the autumn and winter months. "About the beginning of October," says Audubon, "when scarcely any of the seeds and fruits have yet fallen from the trees, these birds assemble in flocks and gradually move towards the rich bottom lands of the Ohio and Mississippi. The males, or as they are more commonly called, the *gobblers*, associate in parties of from ten to a hundred, and search for food apart from the females; while the latter are seen, either advancing singly, each with its brood of young, then about two-thirds grown, or in connexion with other families forming parties often amounting to seventy or eighty individuals, all intent on shunning the old cocks, which, even when the young birds have attained this size, will fight with and often destroy them by repeated blows on the head. Old and young, however, all move in the same course, and on foot, unless their progress be interrupted by a river, or the hunter's dog force them to take wing. When they come upon a river, they betake themselves to the highest eminences, and there often remain a whole day, or sometimes two, as if for the purpose of consultation. During this time the males are heard *gobbling*, calling, and making much ado, as if to raise their courage to a pitch befitting the emergency. Even the females and young assume something of the same pompous demeanour, spread out their tails, and run round each other, *purring*

loudly and performing extravagant leaps. At length, when the weather appears settled, and all around is quiet, the whole party mounts to the tops of the highest trees, whence, at a signal consisting of a single *cluck* given by a leader, the flock takes flight for the opposite shore. The old and fat birds easily get over, even should the river be a mile in breadth; but the younger and less robust frequently fall into the water, not to be drowned, however, as might be imagined. They bring their wings close to their body, spread out their tail as a support, stretch forward their neck, and striking out their legs with great vigour, proceed rapidly towards the shore; on approaching which, should they find it too steep for landing, they cease their exertions for a few moments, float down the stream until they come to an accessible part, and by a violent effort generally extricate themselves from the water. It is remarkable that, immediately after thus crossing a large stream, they ramble about for some time as if bewildered. In this state they fall an easy prey to the hunter.” To this information Bonaparte adds, that “when they have arrived in their land of abundance, they disperse in small flocks, composed of individuals of all sexes and ages intermingled, who devour all the mast as they advance: this occurs about the middle of November.” Mast, however, (that is, the fruit of the beech,) is not their only diet; maize, grass, the peccan nut, and the acorn, are also relished, especially the two latter, which they prefer to any other nourishment; they also eat beetles, grasshoppers, tadpoles, young frogs, and small lizards. It is during this part of the season that they lose a great portion of their reserve and caution, and venture near barns or even into farm-yards in quest of food; and numbers are killed by the inhabitants for sale, and are transported in a frozen state to the markets.

Early in March they begin to pair, the females having previously resumed their solitary mode of life, and roosting apart by themselves. When they call, the males respond: sometimes the woods resound for hundreds of miles with the clamour. As soon, however, as they begin to lay, they no longer keep in the society of their mates,

but carefully conceal themselves during the greatest part of the day ; for, unlike other birds that mate in pairs, and which mutually assist each other in the building of their nest and in the rearing of their young, the male Turkey ferociously destroys the eggs if he discover the place of their concealment. As soon as the number of eggs is completed, a final separation takes place, the males retiring into the most secluded parts of the forest, and the females remaining with their charge. The nest consists of a few withered leaves, arranged on the ground in a hollow scooped out, by the side of a log, or in the fallen top of a dry leafy tree, under a thicket of sumach or briers, or a few feet within the edge of a cane brake ; but always in a dry place, and hidden as much as possible from the eye of the crow, which often watches the Turkey to her nest, and waiting till she leaves it, then plunders it of the eggs and devours them at leisure. The number of the eggs varies from ten to fifteen, or sometimes twenty ; in colour they resemble those of the domestic bird, being dull white sprinkled with reddish brown. The female Turkey always approaches her nest with great caution, and seldom twice together by the same route ; on leaving it, she carefully covers the whole over with dry leaves, so that its discovery is very difficult, and indeed barely possible, save when some fox or lynx, or other marauder, has sucked the eggs and left the shells scattered about. When sitting on her nest, the Turkey never moves at the appearance of an intruder, unless she sees that she is discovered, but crouches lower until the emergency is past. If, however, she perceives herself detected, or suspects so, from a cautious and designing mode of approach, she runs off to a distance of twenty or thirty yards, and then walks deliberately, uttering an occasional cluck. Turkey-hens seldom abandon their nest when discovered only by man, but forsake it at once should a snake or other animal have sucked any of the eggs. It often happens that several hens associate together for mutual safety, depositing their eggs and rearing their broods in one united nest, which is always watched by one or more ; so that no crow, raven, or polecat dares approach it. When the eggs are

on the point of hatching, sooner than leave them, the hen will suffer an enclosure to be made around her so as to imprison her ; and nothing can exceed her care and attention to the callow brood on their emerging from the shell. She now leads her troop abroad, keeping an anxious and incessant look-out, lest hawks or other enemies should pounce upon them ; gradually they move onwards, keeping to the elevated grounds, for the young are only covered with soft hairy down, and if once completely wetted in this stage of their existence, seldom survive. At the expiration of about a fortnight, they are able to raise themselves from the ground, on which they have hitherto reposed at night, and follow their mother to a perch on the low large branch of a tree, where they nestle under her broadly curved wings. They now grow rapidly, and in August, though still led by their mothers, several broods flock together, and display vigour and alertness in securing their own safety. Besides man, who, not content with slaughtering individuals at a time, invents methods of wholesale destruction, the Turkey has numerous enemies ; the lynx, the fox, the puma, hawks and eagles, and the large Virginian eagle-owl, are ever watching their opportunity. In their turn, the Turkeys are alike vigilant ; and as they rise with ease from the ground to the branches, and run with astonishing celerity, they stand with all, but man, on equal chances. The attack of the eagle-owl is often defeated by the singular way in which the Turkey receives the swoop of the assassin ; the moment the owl comes down like an arrow, his selected victim, alive to the danger, stoops its head and spreads its tail in an inverted manner over its back, so as to present a smooth inclined plane to the aggressor, down which he glances, leaving the Turkey unscathed, who drops to the ground and makes a speedy retreat.

The weight of the male Turkey varies considerably, but is usually from fifteen to eighteen pounds, though some very fine birds are as much as twenty-five pounds ; and one was once seen by Audubon thirty-six pounds in weight. The weight of the hen averages about nine pounds.

The wild Turkey is allowed to be much more beautiful than any of the domestic varieties, though some approach in the colours of their plumage, but not in the metallic brilliancy of the tints, which are bronze, violet, green, and purple, according to the incidence of the light. The wild breed may always be distinguished by the tip of the feathers forming the tail-coverts being destitute of a white terminal edge, which is a marked feature in domestic birds, and by the narrowness of the white band at the tip of the tail itself.

Beautiful as is the common wild Turkey, it is far exceeded by its congener the HONDURAS TURKEY, (*Meleagris ocellata*,) which rivals the peacock in its gorgeous dress, refulgent with golden green, bronze, and blue.

The Guinea Fowl, or Pintado, belonging to the genus *Numida*, is characterized by the head being destitute of feathers, often surmounted with a conical protuberance, and by fleshy wattles depending from the cheeks. The tail is short, and pointed downwards; the tarsi without spurs; the general contour of the body plump and rounded.

The COMMON GUINEA FOWL (*Numida meleagris*) is too well known to require description; it was the true meleagris of the ancients, who imported it from Africa in abundance, as an addition to the luxuries of the banquet. In its native state, it associates in immense flocks, which are shy and timid, and fly low, but straight forwards, like our partridges. Their rapidity in running is very great, but not capable of being long sustained; hence, as La Vaillant observes, who saw them in great numbers about the Droog river, when frightened from the trees they trust to their speed, and after running for some distance attempt to take wing again, which gives the dogs the opportunity of seizing them; so that they may be caught without firing a shot. They roost at night on the trees, but their food is obtained on the ground, where

they pass the day. The Guinea Fowl, like the turkey, is now widely diffused, being kept in a domestic state in almost every part of the world. It is not, however, so tame as the turkey, and submits to restraint with difficulty ; it prefers to ramble about at will, selecting a concealed spot in which to breed, and often brings home an unexpected brood. Its singular note, like the noise of a wheel turning on an ungreased axle-tree, or the creaking of rusty hinges, all our readers have heard. Its flesh is much esteemed.

A small group of birds, two distinct species being all at present known, next claim notice. These birds are among the most gorgeous and beautiful of the feathered race, and have been equally admired in all ages ; one species, long naturalized in Europe, forms the most striking ornament of our poultry-yards and aviaries.

The distinguishing characters of the Peacocks (*Pavo*) consist in the smallness of the head, which is furnished with a peculiar and beautiful crest, and in the excessive elongation of the tail-coverts, which are loose and flowing in their texture, and are capable of being elevated and spread out, so as to form one of the most magnificent displays of splendour and beauty in nature. The bill is moderate ; the legs are strong, and armed with a stout spur ; the hind toe very short.

The COMMON or CRESTED PEA FOWL (*Pavo cristatus*) is a native of India ; where, in some districts, it is very abundant. The copses and jungles on the banks of the larger rivers, and especially of the Ganges, are favourite localities. Latham says, that all the jungles in the Nabob of Oude's territories are full of Peacocks ; and that the woods about the passes in the Jungletterey district, especially Tehriagully, are stated to be covered with their exquisite plumes, not less than twelve or fifteen hundred of various sizes having been seen near one spot within an hour. In the Bhaughulpore district, not far from Termbony Nullah, they are also in great plenty,

but the pursuit of them is attended with much danger, in consequence of the tigers, which are also abundant in the same vicinity. Colonel Sykes (see Zool. Proceed. vol. ii. p. 151) observes, that “the wild Pea Fowl is abundant in the dense woods of the Ghauts; it is readily domesticated, and many hindoo temples in the Deckhan have considerable flocks of them. On a comparison with the bird as domesticated in Europe, the latter is found, both male and female, to be absolutely identical with the wild bird of India.” We have seen it in collections from the Travancore country.

The Pea Fowl, though roosting on the tallest trees, seeks its food and constructs its nest on the ground; the place chosen for incubation is concealed among close bushes, and a few sticks and twigs put together with leaves are the receptacle for the eggs; these are twelve or fifteen in number. The female sits very assiduously.

The Pea Fowl was well known to the ancients, and is mentioned both in the sacred writings and the classics. In the first book of Kings, ch. x. 22, we find Peacocks, with other products of India, brought, during the reign of Solomon, by the navy of Tarshish. In the second book of Chronicles, ix. 21, the same fact is again alluded to.

In that sublime chapter, the thirty-ninth of Job, which displays the creative power of God as exhibited by the most striking of the living objects of nature, the plumes of the Peacock are referred to as evidences of His wisdom and omnipotence; “Gavest thou the goodly wings unto the Peacocks?” ver. 13. Take, reader, one of these plumes into your hand, and examine its structure; mark the slender, tapering shaft, fringed with long, loose, silky barbs, glittering, now green, now golden, with metallic effulgence; mark the ocellated disc with which the whole is tipped; how can words describe its everchanging hues! purple, deep and intense, encircled by emerald green, around which runs a broad expanse of bronze, with a narrow margin of golden green, the whole being fringed with waving threads of varying hues, purple or green, or bronze. But who can copy these refulgent tints, this gem-

like lustre! art shrinks from the attempt. Ask the atheist what he thinks of such a piece of workmanship? Will he dare to call it the effect of chance?



THE PEACOCK'S PLUME.

The Peacock appears to have been first introduced into Greece by Alexander the Great, who obtained it during his Indian expedition; subsequently it spread throughout Europe, and in the degenerate days of Rome appears to have been very common; at least it was lavishly slaughtered to swell the feasts of sensualists, whose pleasures were too sordid and low to allow of other and better sentiments than those which degrade and brutalize. To say nothing of the feasts of Hortensius and others, the Emperor Vitellius had a dish, called the Buckler of Minerva, which was said to be filled with a preparation of the livers of scari, (a species of fish, perhaps char,) the tongues of flamingoes, and the brains of Peacocks.

The origin of the term Pea Fowl we are not able to explain, except it be a corruption of the Latin *Pavo*, which itself is borrowed from the Greek word *Tαως*, or

Taon, the name by which it was known in Greece, and which alludes to its habit of *unfolding* its gorgeous plumes.

The manners of this superb bird in a state of domestication are familiar to all; but there is one point, as it respects its appetite, which is not, we believe, generally known. All our domestic poultry eat insects, worms, larvæ, and the like, but the Pea Fowl is a determined enemy to snakes and lizards. Not only does the bird destroy, but he devours those reptiles.

The colours of the Peacock need not be described. Its voice, however, is little in accordance with its gorgeous dress, being a shrill discordant scream.

The JAVANESE PEA FOWL, (*Pavo Javanicus*, HORSF.) a totally distinct species, has but recently been made known to science. Aldrovandus had access only to two drawings, sent to the Pope by the Emperor of Japan, but for more than two centuries afterwards nothing additional was learned respecting it. About the commencement of the present century, Dr. Shaw gave, in his Zoological Miscellany, a figure taken from an Indian drawing sent home by a friend; and in the year 1813, M. Temminck, in the second volume of his “*Histoire Naturelle des Gallinæes*,” published a sketch of the head, with a description, taken by Le Vaillant, from a living individual seen by him at the Cape of Good Hope, whither it had been sent from Macao. It was subsequently observed by Dr. Horsfield in Java, as well as by Sir Stamford Raffles in Sumatra.”

In beauty the present species falls little, if at all, short of its congener; from which it may be easily distinguished by the following particulars. The crest is long, the feathers of which it is composed being equally barbed from the base upwards, and of equal breadth throughout; the colour of the crest and of the head is rich golden green. The feathers of the neck and chest, instead of being silky, are broad, short, rounded, and imbricated like the scales of a fish; at their base they have the same intense green metallic hue as the crest, but have a lighter margin.

The shoulders are metallic bluish green, deep and rich. The train resembles that of the common Peacock, but is hardly so long. In both species the female is destitute of the gorgeous plumes of the male, and is plain, compared to her lordly mate.

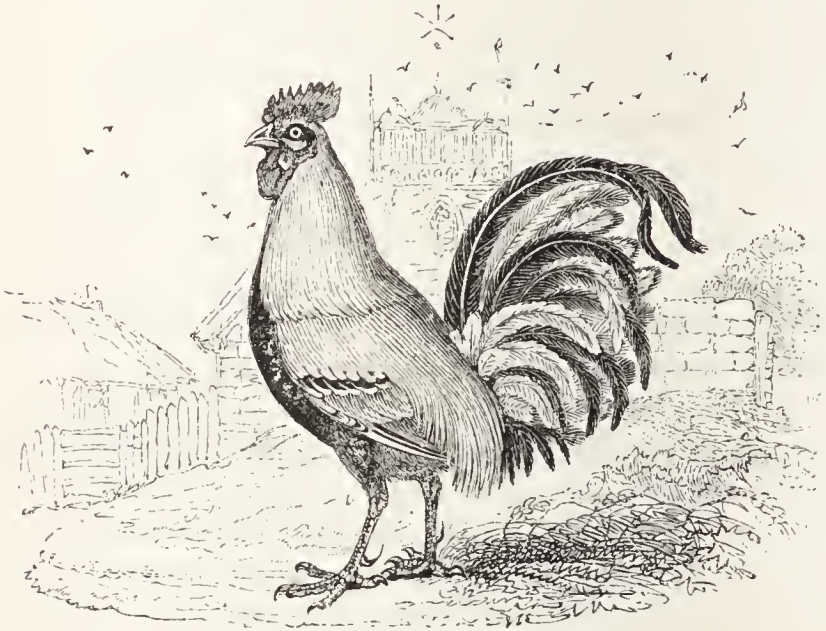
The next group of the family *Phasianidæ* is that containing the Pheasants, and their allies the Jungle Fowls, together with their domesticated varieties; it is a group peculiar to India, China, and the islands of the Indian Archipelago, no examples in a truly wild state being found in other portions of the globe.

The general character consists in the cheeks being more or less denuded of feathers, and covered with scarlet skin; and in the tarsi being usually formed in the male with spurs.

The genera into which the Pheasant tribe is divided are somewhat numerous; at their head we shall place that of the Fowl, (*Gallus*, BRISS.) thus characterized: the head is surmounted by a firm, fleshy comb; to the lower mandible are attached two pendent folds of skin, termed wattles; the tail is composed of fourteen feathers, in two rows, face to face, and directed upwards, and over these, in the male, bend very gracefully two elongated tail-coverts, which, as is the case with the rest, are arched; and all are so placed as to form accessory plumes to the tail.

The DOMESTIC FOWL (*Gallus domesticus*, BRISS.) first claims our attention. Man, whose mental energies have brought so many of the mammalia into subjection and bondage, and whose influence in changing the condition of a country, as it regards even the brute creation, is manifest wherever he takes up his abode, has also made, as we have already seen, a successful conquest over the birds of the air, many of which, reclaimed from their state of aboriginal independence, become pensioners upon his bounty, and “gather round his hospitable door.” Nor is it only upon the gentle and submissive that he has laid the reins of restraint: he has bent the eagle and the

falcon to his purpose. The only permanent subjection, however, which he has effected, has been over such as minister to his necessities, rather than to his capricious pleasures, and whose flesh affords him wholesome and nutritious food. Of all birds which thus acknowledge his right of vassalage, and acquire habits, modified by the control of circumstances imposed by man, the common fowl of the barn-door is the most completely domesticated,



THE COCK.

as well as the most useful, and though so common and so well known, has more interest attached to its history than persons in general are aware of. The Domestic Fowl is of Indian origin, the wild stock from which the race has descended being to be sought for among the jungle-fowls of India, of which the principal species are the Javan cock (*Gallus Bankivus*, Temm.) and Sonnerat's junglecock (*Gallus Sonneratii*, Temm.) To the former of these is generally attributed the origin of the domestic breed, which has ramified into innumerable varieties; varieties produced by domestication and time, and hence proclaiming not only how completely the race has become subjugated, but also the length of time during which it has submitted to man. For, be it observed,

varieties or departures from the natural standard are the result only of a combination of artificial agencies, continued during a series of ages. Hence the Domestic Fowl is among the most remarkable examples of the effects which the agency of domestication, operating through a long course of years, is capable of producing, on the nature and qualities of the brute creation.

From India, the centre whence the human race appears to have migrated, progressing on every side as population multiplied, the Fowl, domesticated from the remotest antiquity, accompanied man in his wanderings. It is true, that the records of the Jewish history, which form the books of the Old Testament, make no distinct allusion to it; yet from the connexion of the Israelites with India, whence they obtained the peacock, as well as apes, and the precious metals (see 1 Kings, x. 22) in the reign of Solomon, they must then, if not at a much earlier date, have become acquainted with it. That it was common in domestication in Syria during the time of our Saviour is evident from the allusions he himself made to its well known habits; we may instance his words to Peter, “Before the cock crow thou shalt deny me thrice:” although the Jewish canons forbid that bird to be kept at Jerusalem, it is evident from this, and from passages in their own writers, that cocks were kept within, or close to the city. (See *Lightfoot*.) Our Lord’s lamentation over Jerusalem, still more plainly shows that this fowl was common among the Jews, “How often would I have gathered thy children together, as a hen gathereth her chickens under her wings, and ye would not!” The ancient Greeks, on whose medals this bird is often seen, valued it for its spirit and prowess; cock-fighting being one of the diversions promoted among a people, whose refinements were too often mingled with cruelties consequent upon their religious system, which aimed not at the amelioration of the heart. The breed most in repute was from Tanagra and Rhodes; also Chalcis in Eubœa, Media, Persia, and the neighbourhood of Alexandria, furnished a distinguished race. The Romans, who imitated the Greeks in so many points,

adopted, among others, this savage amusement ; so consonant to the taste of a populace, whose greatest delight was in the combats of a blood-stained arena, where men and beasts fell in mortal strife, to gratify the lust of slaughter.

At what period, or how the Fowl was introduced into the British isles, it is now impossible to ascertain ; it must, however, have been at an early epoch, as we find it, together with the fish of our rivers, among the things forbidden by the Druids as food. But the cruel practice of cock-fighting, which at different times has prevailed to a very great extent, appears to have been subsequently introduced by the Romans, when they became masters of our island, and established here their laws, their language, and their customs. Happily, with other relics of barbarity sanctioned by usage “ more honoured in the breach than the observance,” our periodical holidays are now seldom disgraced by an amusement revolting to every virtuous mind. In China it is followed with ardour ; and carried to so high a pitch in Sumatra, “ that instances have occurred of a father staking his children or wife, and a son his mother and sisters on the issue of a battle.”

The Fowl appears to adapt itself to all climates, except perhaps those of the arctic circle ; in the northern parts of Siberia it is not found to breed, and in Greenland is only kept as a rarity. At Mansoure, in Egypt, on the contrary, eggs are hatched by thousands in ovens, or rather chambers, the heat of which is regulated with great nicety ; and at the expected time people come from all quarters to purchase the chickens, which require little trouble in rearing. The same plan has been tried in England, but without success. The use of the Fowl and its eggs, as regards the table, are too well known to require any observations. In all ages the cock has been celebrated as the harbinger of morn, the herald of the sun, whose clarion sounds before the dawn of day. “ Watch ye, therefore,” says our Saviour : “ for ye know not when the Master of the house cometh ; at even, or at midnight, or at the cock-crowing, or in the morning.”

Of the various species of Wild Jungle Fowl one of the most beautiful is that termed SONNERAT'S, (*Gallus Sonneratii*, TEMM.) the Junglecock of the British residents. This spirited bird is extensively spread through India, inhabiting the thick jungles, where its shrill voice may be continually heard resounding among the brakes and thickets. Col. Sykes observed, that it was "very abundant in the woods of the western Ghauts, where there are either two species, or two very strongly marked varieties. In the valleys, at two thousand feet above the sea, Sonnerat's species is found slender, standing high on the legs, and with the yellow cartilaginous spots on the feathers even in the female. In the belt of woods on the sides of the mountains, at four thousand feet above the sea, there is a short-legged variety: the male has a great deal of red in its plumage, which Sonnerat's has not; the female is of a reddish brown colour, and is without cartilaginous spots at all; in fact, the female of this variety is the *Gall. Stanleyii* of Mr. Gray's 'Illustrations.' The eggs are exactly like those of the domestic fowl in form and colour, but less in size. The wild hen would appear to sit on a much smaller number of eggs than the domestic, as Col. Sykes shot a hen upon her nest, in which were only three eggs, and the process of incubation had evidently commenced some days. In the craw and stomach of many birds nothing was found excepting the seeds of a stone-like hardness, called *Job's tears*, (*Coix barbata*.) The crow, or call, of this species is like that of the bantam cock."

This Jungle Fowl, though much smaller than the domestic breed, is, from its superior courage and activity, almost to a certainty victorious in the combat; hence it is in high request among the mussulman natives of Hindostan, who are passionately fond of the cruel sport of cock-fighting. This species is distinguished by the singularity of the long feathers of the neck of the male, of which the shafts are expanded into a thin cartilaginous or horny substance, of a brilliant metallic gloss, and the expanded part is pure yellow.

The FIRE-BACKED JUNGLE FOWL (*Gallus ignitus*) is another beautiful species, from Sumatra and the Malay coast; it is larger than the domestic fowl, and distinguished by the fiery orange of the lower half of the back; the rest of the plumage is bluish black; the four middle tail-feathers and the two long bending coverts being white.

To the Fowls succeed the true Pheasants, forming the restricted genus *Phasianus*, in which the cheeks are not strictly naked, but thinly clothed with minute velvety feathers; the throat is covered with plumage, and the top of the head is destitute of a comb; the wings are short; the tail is long and drooping, consisting of gently-arching feathers, of which the two middle exceed the rest in their length. The legs are armed in the male with spurs.

In their attitudes the Pheasants have nothing of the upright gallant bearing of the fowls. The cock elevates his head, and with a bold and haughty air crows defiance to his rival, or marches in state as the leader of his train. The Pheasant runs along with the head projected forward, and lowered to a level with the body; they are, however, distinguished by a rich and beautiful plumage, which places them with justice among the most highly ornamented of the feathered race.

Of the present genus the COMMON PHEASANT (*Phasianus Colchicus*) requires first to be noticed. Though now spread in a semi-domesticated condition over the whole of temperate Europe, this valuable bird was originally a native of Asia, being found in a truly wild state in the present day throughout China, and that immense tract of country to the north-west of China known under the name of Independent Tartary, to the borders of the Black Sea. Its first introduction into Europe was by the Greeks at an early period of their history, and not improbably through the medium of the Argonautic expedition, under Jason, to Colchis in the year 1263, B. C.; the object of which appears to have really been the establishment of a

commerce with that country. Colchis, we need not tell our readers, was a district bordering the Euxine sea on the east, and includes the present Georgia, Mingrelia, &c. From the banks of the Phasis, then, (a river which traverses the country, and flows into the Euxine,) was the Pheasant brought; and hence its name, our word *pheasant* being merely a corruption of the Greek word *Φασιανός*, or, as the Romans wrote it, *Phasianus*, in allusion to the river Phasis. Pliny calls these birds *Phasianæ aves*; that is, birds of the Phasis.

In our island this bird, though very common, and thriving tolerably well, requires no little care and attention. Many situations are very unfavourable to it, so that it cannot be established on the spot; and besides, it is very subject to diseases, which occasion great mortality. The colours of its plumage, and the excellence of its flesh as an article of food, require no comments.

Besides the Common Pheasant, our parks and preserves of game possess another variety, or perhaps species, the RINGED PHEASANT, (*P. torquatus*,) a native of China and the districts near the Caspian sea. It is only within the last few years that this has been introduced. In some preserves it remains pure, but in general is intermingled with the common sort, with which it breeds, producing a race partaking more or less of its characters, the chief of which consists in a white ring encircling the middle of the neck. The intermediate race breeds freely.

China presents us with several other splendid examples of the genus *Phasianus*, of which may be noticed the three following as pre-eminent in beauty: and first, the GOLDEN PHEASANT, (*Phasianus pictus*, LIN.) a species hitherto preserved only in aviaries, where it is shielded from the cold of winter, and supplied with food; though, perhaps, with a little management, it might be naturalized in our wooded parks. It breeds freely in captivity. Latham states that its name in China is “Kinki, or Kinkee, which signifies Gold-flower Fowl.” It is a favourite in that country, as may be seen by its frequent occurrence

in Chinese paintings, in some of which we have observed it faithfully represented.

The Gold Pheasant is much smaller than the common, the length of the male being about three feet, of which



THE GOLDEN PHEASANT.

the tail measures twenty-three inches. The head is ornamented with a beautiful silky crest, of a fine amber yellow; the feathers of the back of the head and neck are square, and disposed in scales, and of a rich orange red, edged with a line of black, and capable of being raised up at will; lower down, so as to lie on the top of the back, the feathers are glossy greenish black, with rounded edges. The back is rich yellow, as are the upper tail-coverts, but with a crimson border; tail-feathers mottled with chestnut and black; wings deep blue at their base; quills and secondaries brown, with chestnut bars; under surface intense scarlet. The female is of a uniform rusty brown, with darker marks and spots; and the tail is comparatively short.

The SILVER PHEASANT (*P. nycthemerus*, LIN.) is a much larger and apparently hardier bird than the preceding, and, though less gaudy, quite as beautiful, from

the chaste and well contrasted colours of its plumage. It is a native of the north of China, and in our island thrives so well in confinement as to leave no room to doubt of success in naturalizing it in a state of liberty. It is as tame, or nearly so, as domestic poultry, and has more of the manners of the fowl than have the pheasants in general. The cheeks are covered with naked skin of intense scarlet; from the top of the head hangs a crest of black feathers. The upper surface generally is of a pure white, traversed with the greatest regularity with finely pencilled black lines across the feathers. This beautiful disposition of markings and silvery ground are well relieved by the purplish black of the chest and under surface. In the female the upper surface is rusty brown; the lower parts dingy white, with blackish bands, and irregularly clouded with brown.

The third species is REEVES' PHEASANT, (*P. Reevesii*, HARDW.) This magnificent bird is also a native of the north of China; but no example had ever reached Europe in a living state until the one brought over by J. Reeves, Esq. of Canton. It is at once distinguished by the length of its tail, and especially of the two middle tail-feathers, which, when fully grown, are from five to seven feet in length, and beautifully barred with curved bands of dark brown on a gray ground, fading off at the edges into pale chestnut. The bird itself is somewhat larger than the common pheasant. When Dr. Latham wrote his laborious "History of Birds," he had only seen drawings of this species, and specimens of the tail-feathers, which he suspected belonged to the species in question; and he alludes to an account in Marco Polo's travels of a Pheasant from the "kingdom of Arguill, on the west side of Tartary," with "tayles of eygth, nine, and tenne spannes long." But since Dr. Latham's work was published several specimens have been received by various museums of Europe, and some very fine are now to be seen in the British Museum.

In its manners this elegant species closely resembles the common pheasant, and, as far as can be judged from

a single example, bears our climate without much difficulty. It is described by Temminck under the name of *Phasianus veneratus*. The upper surface generally is of a golden yellow, each feather having a distinct margin of black; the head white, naked space around the eye scarlet, and a black streak passes over the ear-coverts to the back of the head; throat white, bounded by a gorget of black; the feathers of the sides are white in the centre, with barb-shaped marks of black, and a deep red-brown border; middle and under surface and thighs black; tail-feathers silvery gray down the middle, merging into yellowish brown at the sides, and barred with broad bands of black tinged at their edges with brown.

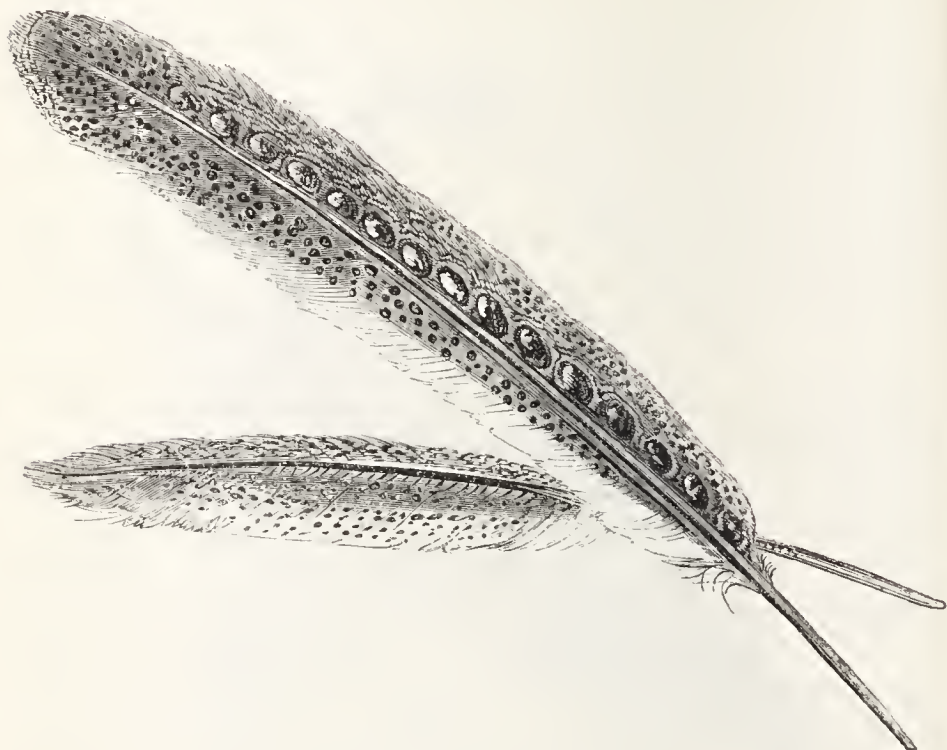
To the true Pheasants, forming the genus *Phasianus*, succeed several other genera, which, though closely allied, are yet distinguished by certain well marked characters. Of these may be noticed the genus *Argus*, (Temm.) containing the celebrated ARGUS PHEASANT, (*A. giganteus*,) a native of the south-east of Asia and the island of Sumatra.

The Argus Pheasant appears to be a bird of recluse habits, frequenting wooded mountains, and places remote from human habitations. It has never been brought alive to Europe, and, indeed, is said to be impatient of confinement, seldom living long in a state of captivity. Its voice is said to be rather plaintive. In size this noble bird is little inferior to a turkey; the tarsi are destitute of spurs; the head and neck are to a great extent bare of feathers, but a short hairlike crest proceeds from the back of the head. In the male the tail-feathers are of great length, those of the middle often exceeding four feet; their colour is rich brown, dotted with small spots of white. The most singular character of the bird, however, consists in the remarkable elongation and breadth of the secondary quill-feathers, which spread out broadly at their extremities, and altogether form a large sweeping fanlike plume. Each of these feathers is beautifully ornamented with a row of eyes, down the web on the outer side of the shaft, and the rest of this vane is filled with linear and oval



THE ARGUS PHEASANT.

spots of deep brown on a yellowish gray ground; the inner web is white at its edge, but has the remainder filled up with round and oval spots, as on the other side of the shaft.



WING FEATHERS OF THE ARGUS PHEASANT.

The primary quills are of a fine yellowish gray, with oval dusky spots, and blue shafts. The upper part of the back and shoulders pale brown, thickly dotted with round spots of deep brownish black; the lower half of the back and tail-coverts pale buff, thinly spotted with black; chest and under surface dark chestnut, with fine zigzag bars of black. The top of the head is ornamented with a short crest of black velvety feathers, and the back of the neck with thin long hairlike feathers. The female is much less than the male, and of a deep ferruginous brown on the lower part of the neck and chest, which is also the colour of the primary quill-feathers. The secondaries are only slightly elongated, and exceed the primaries by nearly two inches; they are beautifully mottled with buff on a dark brown ground; back and under surface brown, with

zigzag narrow bars; tail blackish brown; the top of the head and back of the neck furnished with slender hair-like feathers.

A second genus is that termed *Lophophorus*, characterized by having the head surmounted with an erect plume, like that of a peacock, composed of feathers spreading out into a dilated extremity from a long slender filament. The cheeks are only partially clothed with feathers, the tail is square, the tarsi are armed with spurs, and the tip of the upper mandible is prolonged and dilated. The plumage is of intense metallic brilliancy. Cuvier considers this genus as leading to the peacocks. But one species is known: the IMPEYAN PHEASANT (*Lophophorus Impeyanus*, CUV.) This richly coloured bird is about two feet in length, and of a stout and heavy make; it is a native of the Himalayan mountains, and is never found on the plains; hence it lives in a temperature even below that of moderate; its food consists in a great measure of bulbous roots, which it rakes up with its bill out of the ground, for which purpose, as well as for separating the layers of which the roots consist, this organ is expressly formed. The head and throat are of a rich metallic green; the feathers of the lower part of the neck and top of the back are lance-shaped, and of a deep metallic purple; the wings and rest of the body steel blue, with the exception of a white band across the lower part of the back; the tail is rufous brown. The female differs materially in plumage from her resplendent mate, being of a dull brown, dashed with gray and yellowish, and having a white throat.

If the genus *Lophophorus* leads off to the pheasants, that of *Tragopan* has a marked relationship to the turkeys. The genus *Tragopan* (Cuvier) is characterized by having the head in the male nearly naked, and ornamented with two fleshy pendent horns arising one on each side behind the eyes, while below the throat hangs two loose carunculated wattles, united at their base, and, as in the turkey, capable of being dilated or contracted, and

changing from scarlet to blue through varying and blended gradations. The tarsi are armed with spurs. Two species are known, both from the Himalayan mountains, and both closely resembling each other in size and plumage. Of these the HORNE PHEASANT (*Tragopan Satyrus*, CUV.) has been described by various writers. The male is of a deep blood red on the breast and top of the back, sprinkled with white dots, each dot having a circle of black; the head is ornamented with a crest, of which the anterior part is black, the posterior scarlet; the throat, sides of the head, and back of the neck are black; the lower part of the back, the wings, and tail are rufous brown, with dashes and bars of a deeper hue, interspersed with dots of white. The female is brown, with dashes of yellowish white, and lines and zigzag bars of a dusky hue.

The *Tragopan Hastingsii* is but lately known. Both are natives of the cold regions of the Himalayan mountains.

Leaving the pheasants, the family *Tetraonidæ* comes next, including a numerous assemblage of Partridges, Quails, Francolins, Grouse, and many more. This family, while it possesses no striking characters, yet forms a very natural assemblage, inasmuch as its members are allied by palpable ties of affinity, though divided by minor points of difference into several subordinate groups. It contains a race of birds all fit for the table, but many of preeminent excellence. A few prominent examples only can be noticed here.

The *Tetraonidæ* are all ground birds; that is, they pass their time and seek their food (with one or two partial exceptions) on the earth, frequenting heaths, corn-fields, and meadows. Hence do we find the hind toe short and feeble in all, and in some absolutely wanting. They run with facility, but in general make short flights, and with considerable exertion of wing. The beak and organs of digestion are fitted for grain, berries, and the shoots of plants.

The genus *Tetrao*, of which we have several British

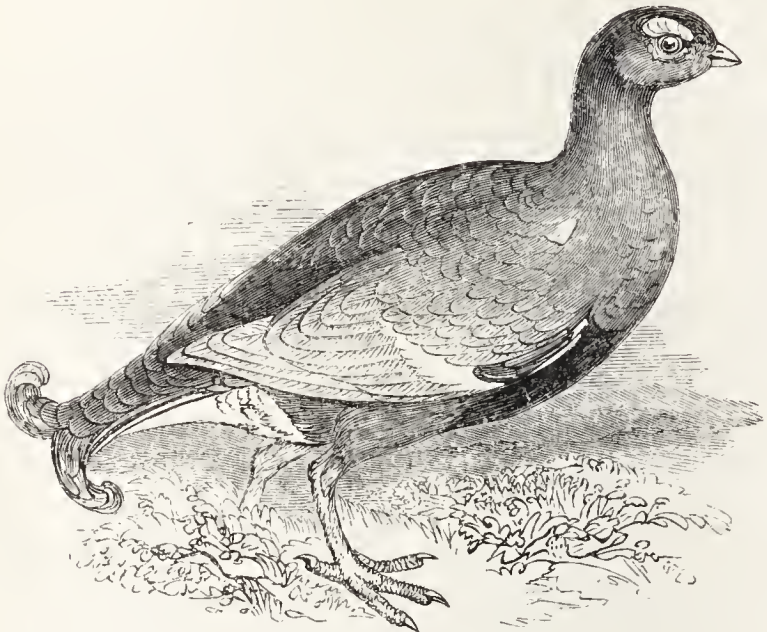
examples, claims our first notice; it is that of the Grouse, and is thus characterized: bill short and strong, nostrils placed at the base and obscured by small closely set feathers; above the eye rises a naked skin, papillose and fringed, and generally of a deep scarlet; wings short; tail of sixteen feathers; toes three before and one behind, all pectinated or furnished along their edges with rough prominences; tarsi feathered.

The Grouse are gregarious in their habits, and are chiefly confined to the higher latitudes of the globe, and to the elevated mountains of central Europe. They feed upon alpine shrubs, berries, and the shoots of heath and pine. Their flesh is highly flavoured, and in great esteem.

Of this genus the noblest species is the WOOD GROUSE, or Capercaillie, (*Tetrao urogallus*,) formerly common in the pine forests of Scotland and Ireland, but now no longer to be met with, having been ruthlessly extirpated. It abounds, however, in the forests of Russia, Norway, Sweden, and other parts of the north, as well as among the dense pine woods of the Alps. The male is equal in size to a turkey, weighing from eight to twelve pounds, or even more. The female is much smaller. During the spring, from February to the end of March, the silence of the black and gloomy forest is broken by the voice of the Woodgrouse calling to his mates, from some stump, or branch, as soon as morning dawns, and before evening closes. With tail spread out, and quills lowered to the feet, the neck protruded, and the feathers of the head ruffled, he utters a cry not unlike the whetting of a scythe, but so loud as to be heard at a great distance, all the time throwing himself into strange attitudes, strutting and wheeling about with great stateliness. To the singular construction of the trachea or windpipe this loud and harsh-toned note is doubtless owing: this organ makes a loose fold of two curves before it enters the chest, so as by this contrivance to gain a great increase of length, and is besides governed by a certain apparatus of muscles.

The call of this bird, however, often brings the sportsman instead of its mates to the spot, and thus proves the cause of its own destruction. The general colour of the male on the upper parts is chestnut brown, irregularly marked with blackish lines; the breast is glossy greenish black, passing into black on the under surface. In the female the head, neck, and back, are marked with transverse bars of red and black; the under surface is pale orange yellow barred with black.

Though the Wood Grouse is banished from our island, the BLACK GROUSE (*Tetrao tetrix*) is still a native of



THE BLACK GROUSE.

its wilder districts, especially where pine-woods afford it shelter. It is common in the highlands of Scotland, in Northumberland, some parts of Derbyshire, and Staffordshire; and also of Hampshire and Surrey, as well as of North Wales. “The bases of the hills in heathy and mountainous districts which are covered with a natural growth of birch, alder, and willow, and intersected by morasses clothed with long coarse herbage, as well as the

deep and wooded glens so frequently occurring in such extensive wastes, are the situations best suited to the habits of these birds, and most favourable to their increase.”— In their manners, they resemble the wood grouse, (and both in these respects agree very much with the wild turkey.) “ During winter the males associate and live in flocks, but separate in March or April,” and “ each individual chooses some particular station, from whence he drives all intruders, and for the possession of which, when they are numerous, desperate contests often take place.” Each male mates with several females. The plumage of the male is at this season of the richest lustre, and the red skin of the eyebrows assumes the deepest scarlet. The female places her eggs in a loose nest under the shelter of some tuft or bush on the ground, where dank weeds and grasses intercept it from being seen. The eggs are six or ten in number, of a yellowish gray, blotched with reddish brown. The food of the Black Grouse consists of mountain berries, the shoots of heath, and insects, to which are added in winter the buds of birch and alder, and the shoots of fir, and, when it can procure it, various sorts of grain.

This beautiful bird is shy and retiring, and difficult to be approached. The colour of the male is deep black, with a white band on each wing. The upper surface glitters with brilliant blue and purple reflections; under tail-coverts white; the tail is forked, and each part curves outwardly, in consequence of the direction of the four outer feathers, which are square at their ends, and curve, especially the last, almost in a circle.

The female is orange brown above, speckled and barred with black, the greater wing-coverts being tipped with white; breast chestnut brown, barred with black; under parts grayish white, barred with dusky; tail slightly forked, orange brown, spotted with black. Length of male twenty-four inches; weight from three to four pounds. Inhabits the north of Europe.

The Red Grouse and Ptarmigans have been separated

from the preceding, and form a distinct genus, under the title *Lagopus*, (Vieill.) In this genus the toes and tarsi are entirely covered with hairy feathers, and the sides of the toes are without pectinated fringes, (the use of which is probably to render the possessors secure while perching,) the hind toe is also very short, barely touching the ground. They dwell in bleak exposed situations, and many frequent the regions of the arctic circle. Their food consists of heath, mountain berries, &c.

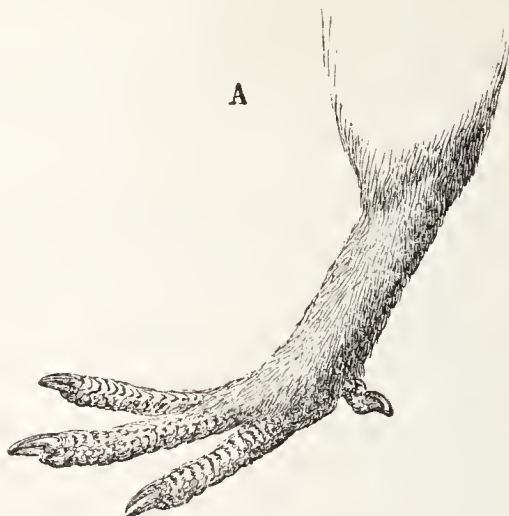
One species, the RED GROUSE, (*Lagopus Scoticus*,) is exclusively our own, being peculiar to the British islands. It is common in Scotland, Wales, and all the high moorland districts; dwelling, during the autumn and winter, in large flocks, which separate and pair very early in spring, the female laying her eggs in March or April; the nest consists of a few sprigs of heath, with stems of grass or herbage, placed in a tuft of bilberry, or other moorland plant; and the eggs are eight or twelve in number, of a grayish white blotched with brown. The value of this bird, as a luxury for the table, is too well known to need any remark. In consequence, however, of the general demand for it, the annual slaughter is very great, and were it not carefully protected during the breeding season, the species would soon become extinct. The colouring of the Red Grouse is very elegant, the general ground tint being a rich chestnut brown, diversified with fine zigzag bars, and dots of black.

In addition to the red grouse, the northernmost parts of our island possess also the PTARMIGAN, (*Lagopus mutus*, LEACH.) a bird common throughout the mountain districts of Norway, Russia, and indeed of the whole arctic circle, as well as of the elevated range of the Alps. "It lives," says Selby, "on the highest mountains, particularly those of which the summits are covered with fragments of rock, and by resembling these so closely in colour, it is enabled to escape its numerous and inferior enemies, and even the piercing eye of the eagle." This

bird pairs early in spring, and the young brood not only "continue together till the succeeding spring, but, in winter, several families associate together, forming small flocks;" at this season they burrow under the snow, as well in search of food (such as the shoots of leaves, and berries of alpine plants) as of a warm and secure habitation.

One of the most remarkable facts connected with the history of the Ptarmigan, is its change of colour, from a spotted livery, which distinguishes it in summer, to one of pure white. In spring, for example, the plumage is varied on the upper and under surface of the body with black, and deep reddish yellow, the quills being white, with black shafts; towards autumn the yellow gives place to grayish white, and the black spots become irregularly broken, till at last they disappear, the plumage acquiring the pure white of the snow. With its whiteness it also acquires greater fulness, and the legs and feet are thickly enveloped in a coating of coarse hair-like feathers. This transition from variegated brown and black to white, assimilating the bird to the snow, which now covers the ground, is not only intended as a security against the discovery of enemies, but, in connexion with the additional increase of plumage, it operates as a preservative of the vital heat of the body during a period of intense cold, under which the energies of the system would otherwise yield. It is ascertained that substances of a *white colour* are worse conductors of caloric, or allow it to pass off less easily, than those of a black or other hue; hence, when the atmospheric temperature is lower than that of the animal body, plumage of this colour must be calculated, in an especial manner, to prevent the rapid diminution of the vital heat; yet, as if this were not a sufficient provision, that of increase of plumage is also made, so much so, that no part, not even the tips of the toes, are left exposed. Even during the summer, the legs of the Ptarmigan are covered with feathers of a hair-like, downy texture, which extend as far as the toes; but, in winter, these parts are so enveloped as to

resemble the foot of a hare. The annexed sketch from nature will show the difference in a clearer light than any



description. A is the leg and foot in summer; B, the same in winter.



As a further illustration we subjoin, first a sketch of the head in its summer, and next in its winter clothing,

showing how much more completely the beak is covered



over during the season of cold, than during that of the summer.



How wise and beautiful are the laws which operate in the preservation of species, and in their adaptation to their assigned localities. And are those laws, we would ask, the result of chance? Most assuredly they speak of Him whose care is manifest even in these winged pensioners upon his bounty.

As spring returns, the Ptarmigan begins to lose the

spotless purity of his plumage, and regain his brown and black. The process is gradual, and it is not produced, as in the winter change, by mere alteration in the colouring of the feathers themselves, but by the operation of moulting, the old feathers being succeeded by new ones, in their turn to become white, and to be exchanged again for others.

The WILLOW PTARMIGAN (*Lagopus Saliceti*,) is found in the fur countries of North America, between the



THE WILLOW PTARMIGAN.

fiftieth and seventieth parallels of latitude, breeding, says Dr. Richardson, “in the valleys of the rocky mountains, the barren grounds, and arctic coasts.” In winter they collect in flocks, “and shelter themselves in thickets of willow and dwarf birches on the banks of marshes and lakes, the tops and buds of the shrubs constituting the principal part of their food at that season. Bare sandy spots are favourite resorts in the daytime; but they pass the night in holes in the snow. When pursued by a sportsman or a bird of prey, they often terminate their flight by diving precipitately into the loose snow, endeavouring to escape by working their way beneath the sur-

face, which they do with considerable celerity." The spring change of plumage begins first in the male, the transmutation of colours commencing on the head and neck, so that the contrast, between this part and the yet white body, is not a little singular. The female does not moult till the early part of June, "the delay being admirably suited to her habits, and well calculated to insure her safety. The male puts on his coloured plumage as soon as the rocks and eminences most exposed to the sun become bare, and at this time he is accustomed to stand on a large stone, and call in a loud croaking voice to the females that hide themselves in their white dress among the unmelted snow on the more level ground." Their summer food consists of the berries of various plants which abound in wild heathy districts, and afford a constant and abundant supply.

The Willow Ptarmigan is about the size of our red grouse, its total length being sixteen inches, its weight one pound and a half.

Strikingly opposed to the ptarmigans, in their powers of flight and in the countries they inhabit, though beautifully provided, like those birds, by their colours, which are however permanent, for escaping the observation of their enemies, the SAND GROUSE (*Pterocles*,) demand a cursory notice. The Sand Grouse are distinguished by long pointed wings, and by a conical form of tail, the two middle feathers being in many species much elongated, and drawn out to a slender point. They are natives of the wide-spread sandy deserts of the hotter climates; two species alone being found in Europe, and that only in the southern districts of France and Spain, where arid sandy tracts, beneath a glowing sky, invite their temporary abode. Birds of powerful flight, they love to wander from place to place, sweeping, on untired wings, the vast solitudes where they dwell.

The deserts of Africa and Asia produce several species, of which some are gregarious, living in broods of hundreds; but others live in pairs, alone in the wilderness. They build their nest on the ground among scattered

tufts of herbage, but as it regards their eggs and young little or nothing is known. Their ground colour is blended gray, sandy yellow, chestnut olive, and black.

One most beautiful species, the PIN-TAILED SAND GROUSE, (*Pterocles setarius*, TEM.) is not only found in the south of Spain, especially Grenada and Andalusia, but very widely over the north of Africa, and the deserts of Arabia and Syria; and as Latham says is in such plenty in May and June in the latter districts, that at one draw of a net as many have been caught as would load an ass; but the flesh is hard, dry, and worthless as food.

The Pin-tailed Sand Grouse is distinguished by a broad belt of deep chestnut, edged with a line of black on each side, passing across the chest. The upper surface is elegantly varied by alternate bars of black, yellow, and silvery gray; the under surface is white.

The COMMON SAND GROUSE (*Pterocles arenarius*) is the other species found in Europe, but more abundantly in the deserts of Asia, where it is seen in flocks. The remaining birds of the genus are all decidedly extra-European, and natives of the hot regions of Africa, and the East.

Among the birds passing under the popular denomination of *game*, few are more esteemed than the Partridge, an example of the genus *Perdix*, (Briss.) which, besides the species so well known in England, comprises several allied species, some of them peculiar to the warmer regions of Europe, and the adjacent confines of Asia, while others are expressly Indian.

The Partridges are distinguished by naked tarsi, usually armed in the male with a blunt tubercle instead of a spur; by a short rounded wing, and a short and pointed tail.

The COMMON PARTRIDGE (*Perdix cinerea*,) is too well known to require especial description. The cultiva-

tion of waste lands, and the improvement of husbandry, while they have tended to render scarce, or indeed almost unknown, many birds once common in our island, have encouraged the increase of the Partridge, a bird delighting in richly clothed corn-fields, and always most abundant in extensive arable districts. Few birds are more solicitous in the rearing and protection of their young than the present; and many of our readers, we doubt not, have witnessed the stratagems and devices of the parent birds to draw off an intruder from their brood, and admired the displays of that instinct which God bestowed upon them, in order to render their efforts well-directed and consistent.

Selby, whose labours in ornithology require no praise to enhance their real value, states, as a fact, for which he himself can vouch, the following narrative: “A person engaged in a field, not far from my residence, had his attention arrested by some objects on the ground, which, upon approaching, he found to be two Partridges, a male and a female, engaged in a battle with a carrion-crow; so successful and so absorbed were they in the issue of the contest, that they actually held the crow, till he was seized and taken from them by the spectator of the scene. Upon search, the young birds (very lately hatched) were found concealed amongst the grass. It would appear, therefore, that the crow, a mortal enemy to all kinds of young game, in attempting to carry off one of these, had been attacked by the parent birds with the above singular success.”

Besides the Common Partridge, a species termed the RED-LEGGED PARTRIDGE, (*Perdix rubra*,) a native of France and Italy, and also of the island of Guernsey, has of late years been introduced into our preserves; wherever it settles, it drives away the common species, and if encouraged, will no doubt multiply, but to the extermination of its congener. It is a beautiful bird, having the feathers of the sides ornamented with a series of transverse crescent-shaped bars of black, white, and chestnut; the throat is white, bordered by a deep band

of black ; the general colour of the upper surface is reddish brown ; of the under surface reddish yellow. Its flesh is inferior in flavour, and is white and dry.

Besides the Red-legged, southern Europe possesses two closely allied species, the GREEK, (*Perdix saxatilis*,) and the BARBARY PARTRIDGE, (*P. petrosa*.) The CHUCAR PARTRIDGE (*P. chucar*) is another immediate relative from India.

The Partridge we find twice mentioned in the Holy Scriptures. In 1 Samuel xxvi. 20, David complains to Saul that he pursues him “as when one doth hunt a Partridge on the mountains.” The Partridge here alluded to is not our Partridge, which is scarce, if not unknown, in Syria, and is, besides, an inhabitant of fertile corn-lands, but most probably the Greek, or Barbary Partridge, both of which are mountain birds, dwelling near the very summits of the highest ranges. The Greek Partridge is found in Greece, (especially the island of Candia,) and the adjacent parts of Asia, as well as in the alpine districts of southern Europe. The Barbary Partridge inhabits Spain, Majorca, Minorca, Corsica, Sicily, the northern coast of Africa, and the adjacent parts of Asia.

In Jeremiah xvii. 11, the Partridge is again alluded to in this remarkable passage ; “As the Partridge sitteth on eggs, and hatcheth them not ; so he that getteth riches, and not by right, shall leave them in the midst of his days, and at his end shall be a fool.” On which passage a commentator remarks that those who place their happiness in the wealth of the world will rue their folly when too late. Such a one may take a great deal of pains to get an estate together, and may sit brooding upon it, but never has any satisfaction in it ; all his projects to enrich himself by sinful contrivances come to nothing.

Another section, distinct from both the grouse and the partridges, though closely allied to the latter, is that of the Quails, (*Coturnix*.) These are birds of migratory habits, and of considerable powers of flight, having their wings more or less pointed, but of moderate length.

They associate in immense hordes previously to their stated journeys ; but during the breeding season are scattered in pairs over the fertile countries, where they take up their summer abode. The tarsi are destitute of spurs.

The COMMON QUAIL (*Coturnix dactylisonans*,) is known over the greatest portion of the Old World, and is a summer visitant to our island, though not in such numbers as in several parts of the continent much farther north. Their favourite localities are level and well cultivated districts. In no part of Europe however, Portugal excepted, do they remain the whole of the year ; but migrate southwards in autumn, and pass over to the continent of Africa, that great asylum for so many of our birds of passage. In India the Quail is stationary ; the luxuriant plains of that country ever teeming with abundant supplies of food.

During their periodical flights between Europe and Africa, they visit the islands of the Archipelago, and the shores of Italy and Sicily in myriads. “The quantity sometimes killed under these circumstances is astonishing, as may be judged from the record of a hundred thousand having been destroyed in one day on the coasts of the kingdom of Naples. In Sicily, their autumnal arrival is anxiously expected, and the inhabitants are represented as taking particular delight in the sport of shooting them ;” the shores being lined with people armed in readiness to commence the work of slaughter.

The usual way of taking them in France, whence our London markets derive their great supply, is by means of a call to imitate their peculiar note, (a kind of whistle which is “repeated thrice successively after short intermissions,”) by which they are enticed under nets, and so captured.

But besides Europe, the adjacent parts of Asia are likewise visited by immense flights of Quails, which spread over Tartary, and as far as the borders of China, performing their periodical migrations. Latham says, “We are told that no country abounds more in Quails than the Crimea ; these birds, during the fine weather,

are dispersed, but assemble at the approach of autumn, and cross the Black Sea to the southern coasts, whence they afterwards transport themselves into a warmer climate. The order of this emigration is invariable; toward the end of August, in a serene day, when the wind blows from the north at sunset, and promises a fine night, they repair to the strand, take their departure at six or seven in the evening, and have finished a journey of fifty leagues by break of day; nets are spread on the opposite shore, and the bird-catchers, waiting their arrival, take multitudes of these emigrants as an esteemed food. The whole history of the habits of the Quail renders it very clear that it was the bird which, on two occasions, God miraculously brought, in order to supply the Israelites with food. The first occasion (see Exodus xvi. 13) was very shortly after the crossing the Red Sea, and escaping from the tyrant of Egypt. Scarcely were they safe before they began to murmur for want of food, forgetting His power who had so lately delivered them. God sent them Quails and manna; “and it came to pass, that even the Quails came up and covered the camp.”

The second occasion was at Kibroth-hattaavah, when the people again murmured and said, “Who shall give us flesh to eat?” But “there went forth a wind from the Lord, and brought Quails from the sea, and let them fall by the camp, as it were a day’s journey on this side, and as it were a day’s journey on the other side, round about the camp, and as it were two cubits high upon the face of the earth. And the people stood up all that day, and all that night, and all the next day, and they gathered the Quails: he that gathered least gathered ten homers, and they spread them all abroad for themselves round about the camp.” Numbers xi. 31, 32.

To these circumstances the Psalmist directly alludes, in Ps. lxxvii. when recounting the mercies of God, in order that all “might set their hope in God, and not forget the works of God, but keep his commandments, and might not be as their fathers, a stubborn and rebellious generation,” he says, “He caused an east wind to blow, in the heaven; and by his power He brought in the

south wind ; He rained flesh also upon them as dust, and feathered fowls like as the sand of the sea." Verses 26, 27.

The pugnacious habits of the Quail are well known ; the males will fight with the spirit and resolution of game-cocks, nor cease the contest till death. Hence the Greeks and Romans kept them for the purpose of fighting, and the same practice prevails in China at the present day.

The nest of this bird consists merely of a few dried stalks, placed in some convenient receptacle on the ground, generally in fields of wheat ; the eggs are from twelve to eighteen in number, of a light greenish hue, blotched with brown.

The colours of the Quail, though by no means gaudy or brilliant, are yet very pleasing, being a mixture of black, chestnut, brown, yellow, and white ; the males vary from each other in the strength of their markings, but are always marked with a black border round the throat, a character wanting in the female. Length seven inches and a half.

The Quails and Partridges of the Old World, are represented in America by a group to which modern writers have given the title of *Ortyx*. The birds of this group are characterized by a greater stoutness of bill than is seen in our Quails or Partridges, and by a more elongated tail, which is somewhat wedge-shaped and rounded at the extremity. They have no spurs on the tarsi, as is the case also with our quails, which they moreover closely resemble in their general manners and pugnacious habits. Mr. Bennett observes, that "they frequent thickets and bushes, building their nests on the ground, and migrate, during the winter, to more temperate regions. They appear to be exceedingly pugnacious in their habits, and as they always congregate in numerous flocks, their quarrelsome propensity has full scope for its indulgence." Many species are known, but none so beautiful as that species termed the

CALIFORNIAN QUAIL, (*Ortyx Californica*.) This

interesting and elegant bird was first discovered by the unfortunate La Pérouse, and the editor of his Voyage



THE CALIFORNIAN QUAIL.

gives a figure of it, stating that it was found in great plenty in the low woods and plains of California, assembled in bands of two or three hundred, and that it was fat and well flavoured.

Specimens were also about the same time brought to England by Mr. A. Menzies, who accompanied Vancouver in his expedition round the world; but still, though described by Latham and Shaw, the bird was imperfectly known till within the last few years, when Capt. Beechey, on his return from his voyage of discovery, brought over several. In manners they closely resemble quails or partridges, but hold themselves more erect and gracefully; the beautiful crest on their head adding much to their appearance. The general plumage is a dusky slate colour, the crest which is bent forwards is black, as is also the throat, round which passes a margin of white; the feathers at the back of the neck are small and triangular, of a slaty hue, with a narrow black margin and white tip. The feathers of the sides and under surface are of a dull reddish white, margined with crescents of

black. In size this bird somewhat exceeds our quail, being about nine inches in length, and stoutly made. The female has but little crest, and the general tone of colouring is browner and more obscure.

The last family of the order Rasores, is that of the Ostriches and their allies, and is termed *Struthionidæ*.

FAM. STRUTHIONIDÆ.

THE birds of this family, though differing from each other in many important particulars, all agree in certain prominent features. Their form is heavy and massive, the great developement of powers being concentrated in the limbs, while the organs of flight are reduced to a mere rudimentary condition, and totally inadequate to the task of raising their possessors into the air.

We are accustomed to look upon birds as denizens of the air; as made for flight; as beings winging their way through the blue sky from grove to grove, and from clime to clime: but here we see an exception; we see a race of birds incapable of elevating themselves from the earth, to whose surface they are bound. It is true they have wings, but what wings!—the skeleton of these organs is small and undeveloped, and they are furnished, not with a dense and well-compacted mass of feathers with stiff shafts, and vanes composed of barbs, close and adhesive; not with firm, springy quill-feathers, with which to strike the air; but they are either devoid of plumage, or furnished with loose and waving plumes, having barbs floating and disconnected.

But though the sphere of these birds be thus retrenched, they are not left without ample compensation. Destitute of flight they make up for this defect by their speed on the course. They scour the wilds and the deserts, outstripping the “steed and his rider.” We have stated the great developement of power to be in the limbs, and accordingly we see the thighs consisting of immense muscles, and the tarsi long and stout, covered with hard scales; the toes, except in two extraordinary birds, which indeed, though placed in this family, are to be regarded as only

provisionally collocated with it, (we allude to the Dodo and the Apteryx,) are at most only three in number, the hind toe being always deficient, not even a vestige of it appearing. To these characters we may add, that the neck is long, the beak rounded at the tip, but otherwise varying in form; the eyes large, and the eyelids fringed with lashes. The feathers of the body are either loose and discomposed, or, on the other hand, hair-like in their texture.

Birds of giant bulk and stature, their appearance has something in it very striking; their intelligence is however but at a low ebb, so that they are esteemed perhaps less sagacious than they are in reality. Such then are the Struthionidæ, strictly terrestrial birds, the whole of whose structure accords with their habits. Their food consists of vegetable matters principally, to which insects and even reptiles are also added; not however, (and it is the case with the rest of the Rasorial order,) without the addition of pebbles, and gravel, which are often swallowed in immense quantities. In captivity, any hard substance is indiscriminately received, but in a state of liberty, instinct doubtless duly guides the selection.

The genera into which the present family is divided are few, and contain each only a single species. Of these we shall first notice the genus *Struthio*, characterized by the beak being flat and rounded, by the toes being only two, by the eyes being large and well guarded by eyelashes, and by the wings being furnished with flowing plumes.

The species under this head is the OSTRICH, (*Struthio Camelus*, LIN.) the Camel-bird of the Arabs. Celebrated from the earliest antiquity, and unequalled in stature among the feathered race, this bird has peculiar claims upon our notice; not only because it is often referred to by the sacred writers, but because, like the camel, its formation expressly adapts it for the wide plains and sandy deserts, where it takes up its abode beneath a burning sun. Nor is it without a certain de-

gree of interest, even if we regard it merely in a commercial point of view, inasmuch as its feathers, prized in every nation, are no inconsiderable article of traffic throughout the world.

The Ostrich is found throughout Arabia, and the whole of Africa, every where preferring the solitude of the desert, and avoiding the presence of man. Endowed with strength proportioned to its size, and capable of inflicting severe injuries by striking with its feet, it never resists actively except in defence of its nest against predatory beasts, or when driven to extremity, but trusts to its speed for safety. Elevating itself to the full stretch, and vibrating its expanded wings, away it scours, leaving its foe behind. Unfortunately, however, instead of darting off in a direct line, in which case the best mounted horseman would have no chance, it wheels round in circles of greater or less extent; and yet so rapid is the course, that its chase is accounted one of the most difficult exercises both for the Arab and his horse, requiring at the same time the most unwearied patience and the most reckless impetuosity, the former in keeping it always in sight, the latter in dashing down upon the fatigued fugitive at the favourable moment; when, on crossing the path of the bird, the rider throws his jerid (a sort of stick) or fires his musket. A chase of this kind will frequently last from eight to ten hours. In captivity, the Ostrich is mild and gentle; and it appears that in some towns in Africa (as Sockna, Hoon, and Wadan) numbers are kept for the sake of their feathers, as articles of trade. Dr. Shaw (see his *Travels in Arabia*) says, “I had several opportunities of amusing myself with the actions and behaviour of the ostrich. It was very diverting to observe with what dexterity and equipoise of body it would play and frisk about on all occasions. In the heat of the day, particularly, it would strut along the sunny side of the house with great majesty. It would be perpetually fanning and priding itself with its quivering expanded wings;”—“even at other times it would continue these fanning vibrating motions.”

He also adds, that though gentle to such persons as

were familiar to them, “ they were often rude and fierce to strangers, especially the poorer sort, whom they would not only endeavour to push down by running furiously upon them, but would not cease to peck at them violently with their bills, and to strike at them with their feet, whereby they were frequently very mischievous;” one unfortunate person, indeed, was most shockingly lacerated.

The Ostrich, in this country, does not appear ferocious in captivity; those in the gardens of the Zoological Society are perfectly tame and quiet; and M. Adanson states, that soon after being captured, the ostrich will suffer itself to be mounted and ridden like a horse, as he often witnessed in Senegal; observing also, that though encumbered with the weight of two riders, it would outstrip an excellent English horse in speed.

Much has been said, and much contrariety of opinion has existed, respecting the nidification of this celebrated bird. In the south of Africa, where it has been most observed by modern travellers and men of science, Le Vaillant, Professor Lichtenstein, and others, the ostrich certainly covers her eggs like the fowl or partridge. It would appear that the male bird is polygamous, and several females lay their eggs together in a single nest; this nest being merely a shallow cavity scraped in the ground, with an elevated rim of sand, and of such dimensions as to be conveniently covered by one bird during the office of incubation. This would account for the great but irregular number of eggs, that is, from thirty to sixty or more, which a nest is often found to contain; each female laying from ten to twelve. Besides those fairly contained in the nest, many are also scattered around; and it is said that the laying continues after the process of incubation has begun, and even after the young are hatched, these eggs being intended to serve as nutriment to the brood till they are capable of digesting coarser fare; a statement not yet satisfactorily proved. Most probably these eggs are merely supernumeraries which the nest would not contain, or which have slipped over the rim. During the day, the females relieve each other in

the office of incubation by turns, and the male takes his turn at night. In this alternate duty, Le Vaillant watched four females successively engaged, the male taking his share towards the close of the evening. Recluse and wary, the Ostrich of South Africa adopts every precaution to conceal the situation of its nest; and uniformly abandons it after destroying the eggs, if it perceives that they have been disturbed; hence, the natives, who regard them as delicacies, abstract them as cautiously as possible by means of a long stick, and endeavour to prevent even the prints of their footsteps from being visible. The period of incubation is about forty days; the young are covered with a coarse, mottled, and striped plumage of blackish brown and yellowish white; the feathers of the back having the shaft dilated into a thin horny strip. Though the ostrich near the Cape thus incubates like other birds, it appears that, “within the torrid zone, the eggs are merely laid in the warm sand, the female sometimes sitting upon them during the night; but in general the rays of the sun are sufficiently powerful to hatch them without any assistance on her part. She does not, however, as has been commonly stated, neglect her offspring, but watches over them with as much solicitude as any other bird, hovering around the spot on which they are deposited, and if surprised, making a short circuit, and constantly returning to the object of her care.”

With the general form and structure peculiar to birds, the Ostrich in many points of its organization bears a close resemblance to the ruminating quadrupeds, a resemblance which was not overlooked by the ancients, and which led them to trace a certain measure of affinity between it and the camel. Aristotle, indeed, asserts the Ostrich to be partly bird and partly quadruped, and Pliny said it might almost be regarded as belonging to the class of beasts. Hence its name of *Camel-bird*, not only among the Orientals, but among the Greeks and Romans; *Struthio-camelus*, as Pliny writes it, being compounded of the Greek words *Στρουθος* a bird, and *Καμηλος* a camel. The muscular thighs, divested of feathers, are certainly not very bird-like; added to which, we find the foot

divided into two toes only, and each toe well padded beneath, and armed at the extremity with what may be as correctly called a hoof as a nail or claw ; the whole bear-



THE OSTRICH'S FOOT.



THE CAMEL'S FOOT.

ing a marked resemblance to the long bifid hoof of the camel. A remarkable feature in the camel consists in a callous naked protuberance on the chest, upon which, when reposing, the animal throws a great portion of the

weight of the body. This callous protuberance occurs in the ostrich also; it is situated over the *sternum*, or breast-bone, which, instead of being furnished, as in birds in general, with an elevated ridge or keel down the centre, for the attachment of the muscles of flight, is here perfectly flat, and destitute of any projection; in fact, though consisting of one broad and somewhat rounded or shield-like piece, it essentially resembles that of quadrupeds. Over this there is placed an elastic cushion, having a hard and rough surface, unclothed with feathers; and on this the bird rests when lying down. Formed, as we see, for dry and sandy deserts like the camel, it is equally patient of thirst; and its powerful stomach, provided with an extraordinary apparatus of glands for pouring out the solvent fluid, is capable of digesting the coarsest vegetable aliment, such as the tops of the shrubby plants which are found in its congenial districts.

The voice of the Ostrich is, under ordinary circumstances, a hoarse sonorous sort of chuckle; it is said, however, to utter, especially in the night, a roaring so like that of the lion, as sometimes even to deceive the Hottentots.

In the days of the Roman emperors, the slaughter of Ostriches must have been very considerable, for we read of the brains of six hundred having upon one occasion been served up in a single dish, and Vopiscus is said to have devoured an entire Ostrich at one sitting; this, however, could only have been a chicken, since the flesh of the full grown bird is very tough and unsavoury.

We find the Ostrich to have been forbidden as food under the Mosaical dispensation.

In Job xxxix. the Ostrich is alluded to in proof of the power of God; and conforming to the elevated diction of eastern poetry, which figuratively clothes the neck of the war-horse with thunder, the description is admirably characteristic. Gavest thou “wings and feathers to the Ostrich, which leaveth her eggs in the earth, and warmeth them in dust, and forgetteth that the foot may crush them, or that the wild beast may break them? She is

hardened against her young ones, as though they were not hers; her labour is in vain, without fear; because God hath deprived her of wisdom, neither hath he imparted to her understanding. What time she lifteth up herself on high, she scorneth the horse and his rider." Ver. 13—18.

Where the climate is hot, the ostrich takes, as we have said, but little care as it respects sitting over the eggs, except at night; and even in South Africa, she often leaves them for an hour or two in the middle of the day, and "forgetteth that the foot may crush them." With regard to the expression that the Ostrich "is hardened against her young ones," we may probably understand it as alluding not only to her deserting her nest, if she discovers that it has been robbed, but also to the fact of her being induced by the approach of enemies, (unlike the hen, which defends her brood and gathers them under her wings,) to take to flight and scour over the desert, leaving her young scattered and unprotected, and perhaps even utterly forsaking the very spot. Besides the above passage in Job, we find, in chap. xxx. 29, the writer thus complaining: I am "a companion to Ostriches." We ought here, however, to observe that both in this passage and in Leviticus xi. 16, as already referred to, the translation gives *owls*, for which, according to learned commentators, should be substituted *ostriches*.

The Ostrich attains to the height of from seven to eight feet; the neck is long, and covered on its upper half with a thin down, through which the pinky colour of the skin beneath is very visible; the thighs are naked, the skin being reticulated. The wings are each armed with two short plumeless shafts resembling the quills of a porcupine, and, in place of true quill-feathers, are supplied with the plumes so much regarded as ornaments, and which are of a pure and beautiful white. Similar plumes also terminate the tail. The general colour of the rest of the plumage is, in the male, a deep black; in the female, a grayish brown. The eggs are very heavy, weighing, it is said, nearly seven pounds; their shell is of

a cream-white, hard, and polished like ivory; it is often made into goblets, or drinking-cups, and set in gold or silver.

If the camel displays proofs of design, being organised for certain localities, which demand according modifications of structure, so does the Ostrich. Its height enables it to survey the wide-spread desert; its large eyes are shielded from the glare of the sun by a fringe of large strong lashes; its speed enables it to scorn the horse and his rider; its stomach is adapted to the coarse fare of the desolate plain; and its powers of enduring thirst are perhaps unequalled. Wise and merciful is God in all his ways!

Closely allied to the ostrich, but placed in a separate genus, (*Rhea*,) characterized by the possession of three



THE NANDU.

toes, is a bird termed the NANDU, or South American Ostrich, (*Rhea Americana*, TEM.) This bird, though common in its native country, is seldom brought alive to

Europe; and, indeed, has, until the last few years, been among the ranks of obscure or doubtful species.

It appears to be diffused over the whole of South America, but is especially plentiful in the neighbourhood of the lake Nahuelguapi, in the valley of the Andes. It is a voracious feeder, devouring every thing indiscriminately, like the ostrich; fruits and vegetables are its staple diet, but it is said to be very fond of flies, which it catches with peculiar address. Azara informs us that it abounds on the borders of the river La Plata, and is generally seen in the open parts in pairs, though sometimes in flocks of thirty. The nest is only a large hole scraped in the earth, with a little straw at the bottom.

The usual way of taking the Rhea is by slings with stones at the end, which are thrown so as to entangle the legs; at other times they are shot: to overtake them is difficult even on horseback.

The Rhea stands about five feet five inches, or rather more, in its natural attitude; its general colour is a grayish brown, intermingled with black, but lighter below. The base of the neck is encircled by black, which passes on the breast into a semi-lunar mark, pointing to each shoulder. The plumes of the wings are long and slender, and those answering to the quill-feathers are white. Those plumes are abundantly imported as an article of commerce (rare as the bird or even specimens of it are in Europe,) and are fixed at the end of a handle, and used as dusting brushes for trifling purposes. The female is smaller and of a lighter colour.

We are happy in being able to give a correct figure of this rare bird from nature, a bird of whose habits we yet require much information.

Next to the Rhea, we place the genus *Dromaius*, which contains a bird called on its first discovery the New Holland Cassowary, but now better known under its Australian title as the Emeu.

The EMEU (*Dromaius Novæ Hollandiæ*, VIEILL.) is a native of Australia, and forms the sole representative of its genus. The genus is thus characterized: bill straight, very much depressed towards the sides, slightly

keeled along the middle, and rounded at the point; nostrils large; cheeks and throat nearly destitute of feathers;



THE EMEU.

toes three, directed forwards; no true quill-feathers either to the wings or tail. The Emeu is little inferior to the ostrich in bulk and stature, being exceeded by that bird alone. In its native wilds it is said to attain to the height of seven feet, a statement perfectly credible, as those bred in our climate average six when fully grown. In form it “closely resembles the ostrich, but is lower on the legs, shorter in the neck, and of a more thick-set and clumsy make. At a distance its feathers have more the appearance of hair than plumage, their barbs being all loose and separate.” Each feather, when examined,

appears to be double, in consequence of the elongation of the accessory plume, which we find at the base of feathers to be in general short and undeveloped, but which in the present instance fully equals in length the main shaft.

The general colour of the plumage is a dull grayish brown ; but in adult birds the cheeks and fore part of the throat are nearly naked, and the skin is of a deep purplish hue. The wings are so reduced as to be invisible. The Emeu breeds freely in captivity in our climate ; the eggs are as large as those of the ostrich, with thick and hard shells of a beautiful deep green : six or seven is the number which the female lays. The young are at first covered all over with a thick downy plumage, of which the ground-colour is grayish white, marked with two stripes of black down the back, and two similar ones along each side, while two broken stripes pass down the fore part of the neck and breast.

In its native climate the Emeu is very widely spread, but appears to be most abundant in the southern districts, and was formerly very common in the neighbourhood of Botany Bay and Port Jackson. From these stations it has however gradually retreated before the tide of colonization towards the interior. In Kangaroo and King's Island it is still extremely numerous.

The manners of the Emeu are very analogous to those of the ostrich ; its food consisting of fruits, roots, and herbage. Though very strong, it is timid and inoffensive, and invariably trusts to its great speed for safety ; indeed, it is so wary and so swift as seldom to be brought within gunshot. The chase of the Emeu by large dogs trained for the purpose is one of the sports of New Holland ; and Captain Curve, in Field's Memoirs of New South Wales, states, that it affords "excellent coursing, equalling, if not surpassing, the same sport with the hare in England." We learn, however, from Mr. Cunningham, that dogs, unless such as are specially trained, can seldom be brought to attack it, both on account of some peculiar odour in its flesh which they dislike, and because, when driven to extremity, it defends itself with great vigour, striking out with its feet, and inflicting terrible wounds. The settlers,

he says, assert, “that it will break the small bone of a man’s leg by this sort of kick, which, to avoid, the well trained dogs run up abreast, and make a sudden spring at the neck, whereby they (the Emeus) are quickly dispatched.”

The flesh of the Emeu, according to the same writer, resembles beef both in “appearance and taste, and is good and sweet eating: nothing, indeed, can be more delicate than the flesh of the young ones.” There is, however, he says, but little “fit for culinary use upon any part of the Emeu except the hind quarters, which are of such dimensions that the shouldering of the two hind legs homewards for a mile distance once proved to me as tiresome a task as I ever recollect to have encountered in the colony.” The eggs are highly esteemed, and form, during the laying season, a great portion of the subsistence of the natives.

In captivity, the Emeu loses its timidity, but not its gentleness, and, as it is easily acclimated in this country, would afford a striking and novel ornament to parks and chases.

The only sound which the Emeu seems to utter is a hollow inward drumming, produced without any motion or opening of the mandibles of the beak; it is in fact a sort of ventriloquism, and is effected by means of a membranous sack opening by a slit into the lower part of the windpipe, and capable of being distended very largely with air. The forcible compression of this air, or of portions of it, into the windpipe, at tolerably regular intervals, is no doubt the cause of the sound.

Africa furnishes the ostrich, America the rhea, Australia the emeu, and the luxuriant islands of the Indian Archipelago the Cassowary.

The genus *Casuarinus*, of which this remarkable bird is the example, differs from the preceding genera of the Struthionidæ, inasmuch as we find the beak, instead of being broad and depressed, compressed laterally with a high ridge or keel; and the inner toe, which is itself very short, armed with an enormous claw. The head and upper part of the neck are naked, the former being

surmounted with a horny crest or helmet, the latter being of the most intense blue, purple, and scarlet, and furnished with two pendent wattles. The body is covered



THE CASSOWARY.

with long, narrow, brownish black feathers, rather stiff and glossy, and having a coarse hairlike appearance. The pinions themselves are very small, and are concealed beneath the general plumage, with the exception of five long stiff and pointed shafts, resembling porcupines' quills,

of a black colour and unequal length ; the longest being twelve inches or more, the rest diminishing gradually.

The CASSOWARY (*Casuarus Casoar*, BRISS.) is found in Java, Sumatra, Banda, and the Moluccas, but no where in great abundance. In size it nearly equals the emeu, and is heavy and stoutly built. Though resembling the ostrich in general form and manners, it differs much in certain points in its internal anatomy, its digestive organs being adapted not for hard and coarse, but for soft and nutritious diet. Hence, instead of grain and the tops of shrubs, fruits and even eggs constitute its food. In captivity it is fearless and voracious, and displays little intelligence.

Like the emeu, the Cassowary is fleet, and when pressed defends itself by striking violently with its feet, and with the spines of its wings. It is often kept tame, like other domestic birds, in its native country, when it displays a bold and intrusive disposition, and is even inclined to commence hostilities against strangers. In our menageries it is very rare.

Hitherto in the present family each species, though incapable of flight, has been found excelling in rapidity and fleetness. Two singular birds remain, which appear, in whatever point of view they are regarded, as anomalies in the whole range of ornithology. Temminck, unable to see their relationship to any other group, placed them by themselves at the end of his system in an order called by him *Inertes* (helpless,) but they are now by most writers placed in the family *Struthionidæ*, to which, however, their claims are very doubtful. Though neither is able to fly or to run, yet in other respects there appears but little affinity between them. The birds alluded to are the Dodo and the Apteryx, and their history is not a little enveloped in darkness.

The DODO (*Didus ineptus*, LIN.) is now no more among the tribes of earth ; its name alone survives, with a few of its relics, to testify of its having once existed.

Man has ever been the great desolator of the animal

kingdom; he has thinned the forest and the plain, in the same ratio as he has extended his empire; nay, the very tenants of the ocean have felt his power, and exhibited



THE DODO.

the proofs of his influence in the diminution of their numbers, or the abandonment of their ancient haunts. It would be easy to prove from history, that various species of animals were once common over particular regions, where they are now no longer known. Nor would it, we suspect, be impossible to prove that some animals have not only been diminished in their numbers, or restricted in the bounds of their habitation, after an unsuccessful struggle to maintain their primeval empire, but have even become altogether extinct from the face of the earth, and that by the agency of man. One remarkable instance at least is upon record, an instance, too, occurring among a class of the feathered tribes, which, generally speaking, are most capable of avoiding the great destroyer. That bird is the Dodo.

To the east of Madagascar are a group of islands which, on their first discovery by Europeans, were uninhabited by human beings, and had, perhaps, never even been visited by man. These islands are now called Bourbon, Mauritius, and Rodrigue, and appear to have

constituted, if not the only habitat of the Dodo, at least its strong hold, where, unmolested, it long continued to exist and breed.

That the Dodo existed in other islands adjacent to Madagascar, and, perhaps, even in Madagascar itself, we have every reason to conclude; for the Portuguese who discovered the three islands above named, and are said to have found neither land-bird nor quadruped in them, having, in all probability, not instituted any search, were yet acquainted with this bird, and gave it the name of *Solitario*; and in 1497, Vasco de Gama, after doubling the Cape of Good Hope, found an island near a bay, where a number of these *Solitarios* were seen; and again in 1499, touching at the same place, the crew took a number of them.

In 1614, Bourbon, then called Mascarenhas by the Portuguese, and still uninhabited, was visited by Castleton, who found the Dodo in great numbers, and so tame as to allow itself to be taken or killed with sticks or stones. In Mauritius, he informs us, they are in great plenty, and there called the Giant.

In 1691, Rodrigue, which, although known, had, most probably, never been previously visited, owing to the coral reefs around it, and the want of secure anchorage, was examined by Legual, who remained there with seven companions, with a view to colonization. Of the Dodo, which he calls *Solitaire*, or the solitary, because, though abundant, it never congregates in flocks, he gives many interesting particulars. "The males have generally a grayish or brown plumage, the feet of the turkey, as also the beak, but a little more hooked. They have hardly any tail, and their posterior, covered with feathers, is rounded like the croup of a horse. They stand higher than the turkey-cock, and have a straight neck, a little longer, in proportion, than it is in that bird when it raises its head. The eye is black and lively, and the head without any crest or tuft. They do not fly, their wings being too short to support the weight of their bodies; they only use them in beating their sides, and in whirling round." He also notices their being a delicacy for the

table, and their weight, which is forty-five or even fifty pounds.

The females he states to be of a blond or pale brown colour, and to build a nest with leaves of the palm-tree, upon a clear spot of ground, laying only one egg, larger than that of a goose.

In 1698, the Dutch took the Mauritius, and there found this singular bird.

At what precise period the Dodo became extinct, it is impossible to say; most probably, towards the middle of the seventeenth century, or the beginning of the eighteenth, as all endeavours to discover the bird since Madagascar and the adjacent islands have become familiar to Europe have failed. The only relics of which we are aware, are a breast-bone in the museum at Paris, a foot in the British Museum, and a head and foot in the Ashmolean Museum at Oxford; the remains, as it would appear, of a once perfect specimen which existed in Mr. Tradescant's museum at Lambeth. A painting of the bird also exists in the British Museum, copied by the late Mr. Edwards, from an original, taken from a living bird sent to Holland from the Mauritius, while this island was held by the Dutch. A cast of the head in the Ashmolean Museum is now before us; it resembles that of no bird now known; but has a general contour, at once proclaiming the close affinity of the Dodo to the vulture tribe, an affinity not perhaps altogether unindicated by the great difference existing between the number of its eggs, as reported by Legual, and those of the gallinaceous order in general, and of the family Struthionidæ in particular. In this opinion we are not alone. We may describe the head thus:—It was very evidently capable of being (as in most vultures) retracted within a hood or fold of skin, thinly covered with small feathers; the beak, stout and large, but elongated, was strongly hooked at the tip, and covered at the base with an extensive cere, at the termination of which, near the edge of the upper mandible, are the nostrils; the gape is wide, extending beyond the eye; the skin of the throat was loose, and thinly clothed; the cheeks, forehead, and top of the head were naked; the

measurements are as follows :—From the eye to the end of the beak, six inches ; to the nostril, three inches ; breadth of skull across forehead, three inches and a quarter ; from the eye to the back of the head, three inches ; mean depth of beak, two inches and a quarter.

It is not improbable but that a more accurate search in the islands where the Dodo lingered till its extinction, would bring to light more valuable relics, if not a perfect specimen.

But how, it may be asked, has the bird become extinct, and blotted out of the list of its race ?

The Dodo appears to have been formed expressly for solitudes, unbroken by the enterprise of man, from whom, as its wings were powerless, it could not escape, and whom its instinct did not warn it to regard as an enemy, even had it possessed the natural means of avoiding his destructive proceedings. At all events, with short stout legs, and inefficient wings, fitting it to escape neither by speed nor by flight, it fell an easy prey (for what did man ever spare?) before the ruthless destroyer.

We have here, then, one bird which has become so completely extirpated, as to have left scarcely any relics to testify to its fate : strange however to say, such, it is strongly suspected, is, or soon will be, the case with our second example, the *APTERYX AUSTRALIS*, (Shaw.) Of all extraordinary birds this appears to be the most ; and so anomalous is the whole of its conformation, that the existence of any specimen has been denied, to which such a combination of characters could legitimately belong. That such a specimen does exist is, however, as indisputable as its genuineness, but it is the only one extant in Europe. It was brought from New Zealand, and was in possession of the late Dr. Shaw, who gave a description of it, accompanied with a figure, in his “*Naturalist’s Miscellany.*” This unique specimen now forms part of the collection of Lord Stanley. This bird, having been previously unstuffed, so as to lay it completely open, that its genuineness might be proved, has been exhibited, and subjected to the most rigid scrutiny ; and whatever doubts may have been previously entertained respecting it, they must now be dissipated.

The *Apteryx* stands about two feet in height. As its name imports, it is wingless; at least its wings are so rudimentary as to be discovered with difficulty, and are terminated by little claws. The beak is long, slightly



THE APTERYX.

bent, and notched at the tip, on the upper mandible, down which runs a longitudinal furrow. The nostrils, instead of opening at the base of the mandible, as in birds in general, and especially in those whose conformation of beak approaches that of the present—a conformation adapting the beak for insertion into mud and water of morasses, and to allow of breathing going on at the same time—are here very minute, and situated at the very tip. The tarsi are short and thick, as are also the toes, of which the hindermost is merely a strong horny spur. The nails of the three anterior toes are straight and thick at the base, ending in a sharp point, and appear well adapted for digging. There is no vestige of a tail, the feathers are long, loose, and like those of the emeu; except that in the emeu, there are double plumes from each quill; whereas in the *Apteryx* they are single. The

eye was small, as is indicated by the opening of the eyelids.

The general colour is a dull grayish brown, being darker above. Of the habits, food, and general modes of life of this singular bird, nothing is ascertained; in fact, no other example is known, nor has any one ever seen a living specimen, though traces of the bird have even recently been discovered in New Zealand. Perhaps, however, no living specimen now exists; certainly none will long exist. Unable to escape its foes or conceal itself from their attacks, it will soon be, if it is not already, exterminated by the savage tribes of the island, whence, as one of the last of its race, the specimen alluded to was brought; and the scientific of a future day will have only the figures and descriptions of the present era to warrant their belief that such a bird as the *Apteryx Australis* ever dwelt upon the earth.

Since writing the above, the Zoological Society has become possessed of a specimen (now making the second in Europe) through the exertions of A. Macleay, Esq. colonial secretary, New South Wales. In a letter accompanying this valuable acquisition to the stores of science, he states, that the individual, from which the skin was obtained, lived for nearly a fortnight in the possession of the Rev. W. Yates, of New Zealand. Its food consists of earth worms, and its mode of obtaining them is thus detailed: "It strikes with its bill on the ground, and seems to know by the sound where its prey lies. It then thrusts its bill into the ground, draws up the worm and swallows it whole and alive. They kick very hard, and their legs are remarkably strong for the size of the bird." Mr. Yates observes that it is very rare in the land, but that he will endeavour to procure others, an endeavour in which we trust he will be successful. A body sent to England in spirits would enable us to ascertain the true situation of the bird in nature, and its various affinities, which at present are very obscure.

We now enter upon our fifth order: it is—

ORDER V.

GRALLATORES. VIG.

THE word *Grallatores* literally means *stilt-walkers*, and is very applicable to the assemblage of groups before us. Hence also the French term *Les Echassiers*, as adopted by Cuvier. The *Wading Order* is also another title given to the present general assemblage; but this, though applicable to the greatest number of subordinate groups, is not so to all; for, as in every other order, or natural section, so we find here also many species, nay several groups, which stand upon the border line between this order and the preceding.

The *Grallatores* not only possess points of peculiar importance to the scientific ornithologist, but are in many respects no less interesting to the general lover of nature. The place which this great group occupies is well worthy our consideration, as we obtain in it perhaps more than in any other, a glimpse of that plan which appears to prevail throughout animated nature; a plan which goes to supply the space intervening between any two prominent points with intervening links. The station then of the *Grallatores* is intermediate between the rasorial birds on the one hand, and the natatorial or swimming birds on the other. To say nothing of the Bustards, which are acknowledged by all to be on the border line, we may cite that singular bird the Golden-breasted Trumpeter, of South America, (*Psophia crepitans*,) as uniting most pointedly the *Grallatores* to the *ostriches*, at one part of the chain, while at another the *Grallatores* as decidedly pass off into the true swimming order, through the Avocet, the Oyster-catcher, the Phalarope, and many others. The structure and general conformation of the great family of wading birds are such as fit them for the local situation to which they are

appointed, and have an equal relationship to the nature of their food. The woods and mountains and verdant plains are not their portion; neither, on the other hand, is the bōsom of ocean, nor the surface of mighty lakes and rivers, where far away from shore so many revel in a congenial element; but theirs are the morass and the low oozy lands which border the sea, and its petty creeks and inlets. Here they find their food, which consists of the smaller fishes, mollusca, insects, and aquatic plants. Their legs are accordingly of great length, the thighs bare of feathers for a considerable distance above the joint, and the toes either long and spreading, or partially webbed; many, if necessity requires it, can swim, and some few swim and dive with great dexterity. In proportion to the length of their legs is that of the neck, or at least generally so, and where the neck does not bear a due relative proportion, its length is generally made up by that of the beak; but in many, as the stork and heron, we find both the beak and the neck equally elongated. To the heron in particular, which lives on fish, which it catches by darting its beak at them with the rapidity of an arrow, the utility of such a provision must be very apparent. In the structure of the beak the wading birds offer much variety, according to the particular nature of the food to be obtained. In many it is long, pointed, and powerful; in others it is broad and rounded; and again, in others soft and pulpy at the tip, which is supplied with numerous nerves, so that when inserted into the oozy mud in search of insects or seeds, it performs the office of a delicately sensitive feeler. Thus the heron, the spoonbill, the oyster-catcher, and the woodcock, afford examples by way of contrast, in each of which we find this organ so modified as to be consonant to the nature and habits of its possessor.

The order *Grallatores* is very extensive, and embraces a vast assemblage of subordinate groups, almost infinitely varied in minor details. Besides those on the border-line, it comprehends cranes, storks, herons, ibises, snipes, plovers, sandpipers, rails, gallinules, coots, and many more. The present delineation will, therefore, go no

farther than a general outline, illustrated by the most prominent and best examples, that the reader may form a clear idea of the main and distinguishing features of the whole.

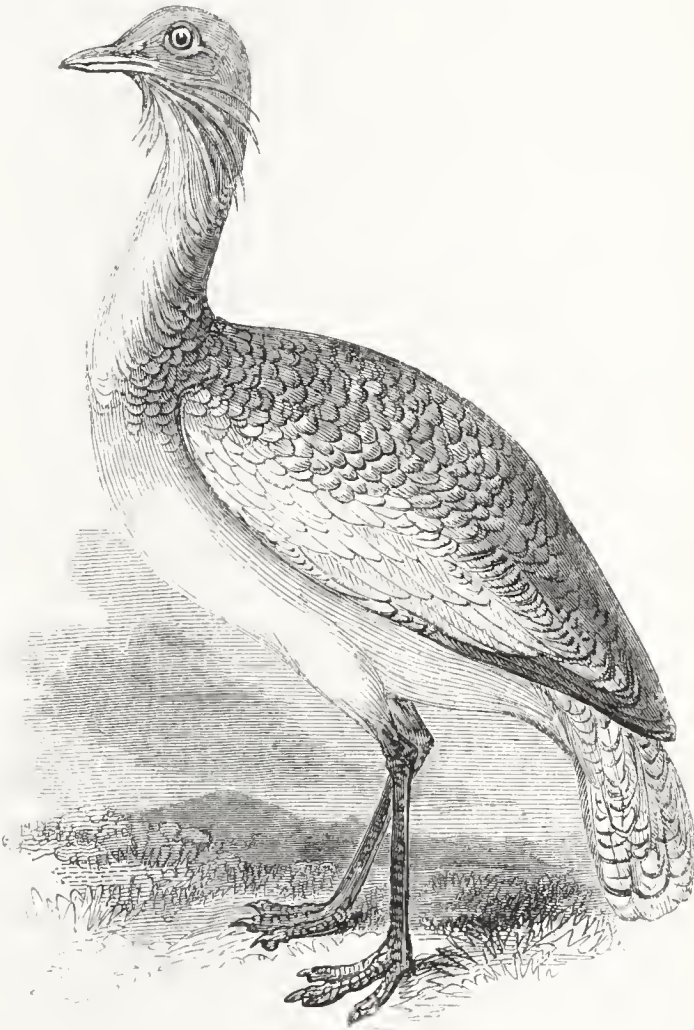
The families will stand arranged as follows: 1, Bustards; 2, Plovers; 3, Cranes; 4, Herons; 5, Snipes; 6, Rails. Each family contains multitudinous subordinate sections or genera.

The Bustards are distinguished by the stout heavy contour of body, which we see so characteristic in the gallinaceous birds; their neck and limbs are moderately long, the beak is short, conical, and compressed. The toes are three before, short, and united at their base. The wings are moderate.

The localities frequented by these birds are wide open plains, more or less cultivated, where food abounds; this consists of grain, tender herbage, and insects. When in danger, they either squat down on the ground or run; but if closely followed, they take wing, and keep up a direct and rapid flight till out of reach. They are polygamous in their habits. The females prepare their nests and incubate alone, leaving the male at the commencement of the period for laying. The moult of these birds appears to take place twice a year, and the males not only exceed the females in size, but are distinguished by a more ornamental style of plumage; the young males resemble the females, and it is very probable that, in winter, the adult males lose many, if not all, of the distinguishing ornaments, and perhaps also the richer colouring which adorns them in summer.

Our European species of Bustards are very few, at most three, and of these only one has just claims to be ranked among British birds. It is, however, one of the most beautiful. The GREAT BUSTARD, (*Otis tarda*, LIN.) once common in our island, is now very rare, and is yearly becoming more so; indeed, except in some parts of the county of Norfolk, it cannot be sought for with probability of success. A few years since it was abun-

dant upon Salisbury Plain, Wiltshire ; but, as Montagu states, in consequence of the desire to obtain the eggs, and the bird itself, either young or old, this largest of our winged tenants had disappeared from its favourite haunts, so that for two or three years previous to 1813 not one was to be seen. The presence of a bird of such magnitude as the Bustard, the male of which weighs from



THE GREAT BUSTARD.

twenty-five to thirty pounds, cannot, in a thickly peopled country, fail to attract observation, and observation in such cases is seldom unaccompanied with active measures of destruction ; hence this noble bird will, unless

protected, soon be banished altogether. In many parts of France and Italy, in Spain and Portugal, it is still common, as also in Russia and on the plains of Tartary. In its native haunts it is a permanent resident, unless forced by scarcity of food during the inclemency of winter to seek a temporary asylum elsewhere. Under these circumstances flocks of five or eight sometimes visit the coast, but oftener cultivated enclosures near the dwellings of man, who seldom fails to thin their number. Its flesh is held in high estimation. Though becoming tolerably tame in captivity to those with whose presence it is familiar, the Bustard never altogether loses its innate shyness and distrust. In a state of freedom it is so wary as to be approached with the greatest difficulty, selecting as its reposing place the centre of the largest enclosure, if the country be enclosed, or the wildest and most open part of the plain, so as to be free from the danger of a surprise. "Upon being disturbed," says Mr. Selby, "so far from running in preference to flight, (as has often been described,) it rises upon the wing with great facility, and flies with much strength and swiftness, generally to another haunt, which will sometimes be at the distance even of six or seven miles. It has also been said that, in former days, when the species was of common occurrence, it was a practice to run down the young birds (before they were able to fly) with greyhounds, as affording excellent diversion. So far from this possibility existing, with respect to the present remnant of the breed, the young birds, upon being alarmed, squat close to the ground, as the young of the lapwing, golden plover, &c. and in that position are frequently taken by hand; indeed this is even the habit of the female during the time of incubation." The eggs of the Bustard are deposited on the bare ground, sometimes amongst clover, but generally in corn-fields; they exceed those of the turkey in size, and are of a pale brownish olive, with darker blotches; the number is two, which it appears is the usual number with the whole of the Bustard family. The food of this species consists of grasses, green corn, the tender leaves and sprouts of turnips, and grain, but worms are not

refused, and even mice and young birds are devoured, being swallowed whole.

The adult male possesses a singular membranous pouch, beneath the skin on the fore part of the neck, having an entrance to it beneath the tongue. It is of considerable capacity, being able, as Montagu informs us, to contain three or four quarts of water, the purpose for which some have thought it was designed. Of this, however, there is no proof; nor, indeed, is its use at all ascertained.

The length of the male is more than three feet; from each side of the cheeks, near the lower mandible, arises a tuft of long wiry feathers, with loose barbs. The fore part of the neck, over the pouch, is destitute of feathers, the skin being bluish black. Head and back of the neck bluish gray; a longitudinal streak of black occupying the top of the head. Upper surface of a fine orange yellow, beautifully barred with zigzag transverse markings of black. Under surface white, a tinge of yellow occupying the chest. Tail white at its base, passing into yellowish brown, with one or two black bars.

The female is about half the size of the male, and wants the moustaches and the throat-pouch; her head and neck also are of a deeper tint of gray.

The LITTLE BUSTARD, (*Otis Tetraz*, LIN.) though placed among British birds, has claims to our *Fauna* only as being an accidental visitor, eight or ten specimens having been killed or taken in various counties. The arid plains of Spain, Italy, and Turkey are its favourite localities. It is also found, though more sparingly, in the South of France; but in the northern parts of the continent is never seen. Its manners and food are precisely those of the Great Bustard, but it is much inferior in size, the adult male measuring only eighteen inches, the body being somewhat larger than that of a pheasant. Its flesh surpasses in flavour that of all other game. The male, in his summer dress, is very beautiful; the top of the head and the upper surface generally are rich tawny yellow, with dots and bars of black. The throat is slate

colour, below which a necklace of white encircles the upper part of the neck. This is followed by a band of black. The feathers down the back of the neck are considerably elongated. The under surface is white, but a crescent of black passes across the chest. The quill-feathers are black. The female is yellow, varied with black bars and dashes above, and white beneath.

The RUFFED BUSTARD (*Otis Houbara*, LIN.) is the third European species; but it is of as rare occurrence in Europe as the Little Bustard in England. It is a native of Barbary and Arabia, in the deserts of which it finds a congenial abode. The sides of the neck and chest, in the adult male, are graced by a range of long plumes, the foremost and upper portion of which is white, the remainder black. The front of the neck is white, minutely mottled with gray. The head is surmounted with a beautiful crest of white plumes. The upper surface is tawny yellow, with zigzag bars, black; the under surface is white. The young male wants both the crest and the ruffles down each side of the neck; the general colour above being of a dull tawny yellow, varied with bars and dashes of black. The female is not known; and it is more than probable that, after the breeding season, the adult male loses the crest and plumes on the chest and neck.

Of the other species several are African, of which the *Otis Kori*, described by Mr. Burchell, in his Travels in Southern Africa, measures upwards of five feet in height. The others are Indian, and pass under the general name of *Florikens*. Of these we may enumerate the *Otis Bengalensis*, *Otis nigriceps*, *Otis fulva*, *Otis Indica*, *Otis aurita*, &c. The food of several of these is almost exclusively grasshoppers. Their flesh is much esteemed.

The Bustards are all peculiar to the older continents, none being natives of America; they generally congregate in flocks, and one species, the *Otis nigriceps*, is so common in the Deckhan, that one sportsman has shot

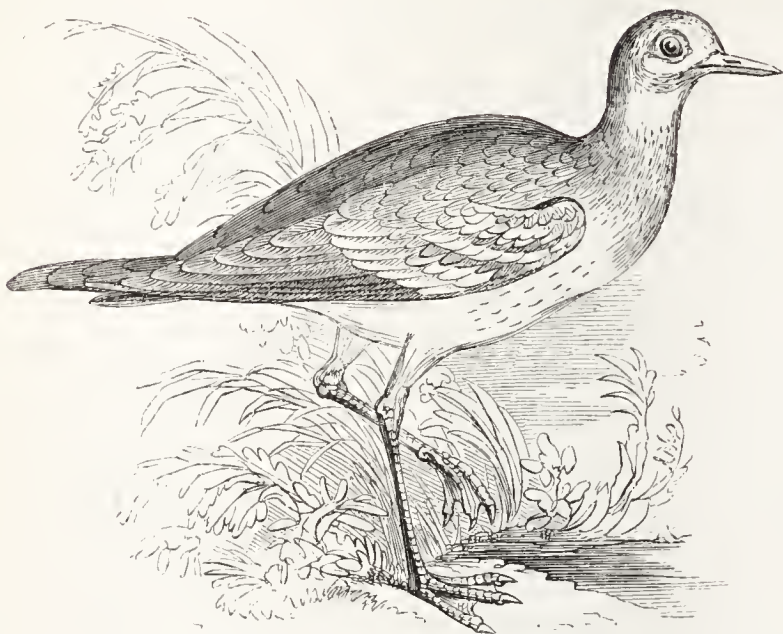
nearly a thousand; this noble bird measures fifty-six inches in length; the male has the throat-pouch, which we noticed in the Great Bustard of Europe. See Zool. Proceed. vol. ii. p. 155.

From the Bustards we pass to the PLOVERS, (*Charadriadæ*, VIGORS,) a family comprehending various well-defined groups, some allied to the one which we have just left; others to groups belonging not only to the present order, but to that of the swimming birds also. Hence some frequent the low flat shores of the sea, or the mouths of rivers and marshy districts; while others take up their abode on open plains, heaths, or stony tracts of country. Not a few are feeders by twilight, or even during night, and have the large full eye, so characteristic of nocturnal habits. This fulness of eye is necessarily accompanied by a corresponding expansion of the socket, giving the head an enlarged appearance, a feature very prevalent among them. The number of eggs laid by the females throughout most of the genera is four; in one genus, however, *Ædicnemus*, the number, as in the bustards, is two. The Plovers run well and rapidly, and their flight is also sweeping and strong, the wings being long and pointed. Most are subject to a double moult, one before the breeding season, when a striking summer livery is assumed; another in autumn, when this livery is laid aside, for a plainer dress during winter.

The genus *Ædicnemus* has close affinity to the Bustards; it is characterized as follows: bill longer than the head, strong, straight, depressed at the base, and compressed at the tip, which is hard; nostrils placed in the middle of the upper mandible; tarsi long and slender; toes three before; wings pointed; tail graduated; eyes large, and formed for night.

The genus *Ædicnemus* embraces but a limited number of species, all very similar to each other in plumage and habits. One is a native of Europe, and is also tolerably common in our island during summer, where it is known

under a variety of names, such as the Great Plover, the Norfolk Plover, the Stone Curlew, and the Thick-kneed Bustard. It is the "COMMON THICK-KNEE" of Selby, (*Œdinenus crepitans*, TEMM.) This interesting bird



THE THICK-KNEE.

visits our wide hilly downs and extensive commons, in April or May, where it appears in small flocks, which are extremely shy, and difficult to be approached, flying around in wide circles, if disturbed from their repose, and occasionally settling, but immediately rising on the least appearance of danger, and making a still wider sweep; indeed, if much harassed, they quit the spot entirely. They run along very nimbly, with the head poked out, and on a level with the body, but do not trust to their speed on the ground for safety, as far as man is concerned. Though not limited to any particular districts, the Thick-knee is principally to be met with in the southern and eastern counties of our island, and especially Norfolk, Suffolk, and Sussex. On the continent it is common in Spain, the south of France, Germany, Italy, and Turkey, and extends also over various parts of Asia and Africa.

Wary and circumspect as this bird may be, day is its natural season of rest when it crouches behind a stone or clod, and night its period of activity; it seeks its food by night, tripping over the dewy turf, when darkness is its protection; its prey accordingly consists of such animals as come abroad at the same hour; these are worms, beetles, the larvæ of insects, reptiles, and even small mammalia; while thus engaged, it may be heard frequently uttering its note, a loud and shrill whistle, supposed to be a call to its mate.

Like the bustard, it makes no nest, “but deposits its eggs on the surface of the earth, in fallow or other bare ground, especially where flint stones are abundant, as their similarity to the bird and its eggs furnish great means of safety from its enemies.” The eggs are two in number, and are of a light yellowish brown, with darker streaks and blotches. The young follow their parents immediately after being excluded from the egg, and are then covered with a mottled gray down, which gradually gives place to the proper plumage, till, in six weeks or two months, they are enabled to fly and provide for themselves.

The cares of the breeding season being over, the flocks which had scattered themselves over the downs, each pair being intent upon the rearing of its own brood, now re-assemble, increased by their young, and prepare to quit our inclement skies, for the southern latitudes of Europe, or the adjacent regions of Africa and Asia, to return with the warmth of the following spring. Its flesh is of little value.

The general plumage of the upper surface is of a reddish ash colour, each feather having a central streak of umber brown. Neck and chest yellowish white, streaked with brown; throat white; quills black; under surface white; legs yellow. Length sixteen inches.

Next is the genus *Cursorius*, which is also very limited, including only five or six species, closely united to each other in habits, manners, and style of plumage.

The generic characters are as follows : beak shorter than the head, slightly arched, and pointed ; nostrils oval, surmounted by a small protuberance ; tarsi long and slender ; toes three before, and very short ; wings pointed.

The species of the present genus are all natives of the sultry climates of Africa and Asia, and it is only by accident that individuals of one of the species appear in the middle districts of Europe. They frequent sandy sterile plains, often far from water ; they run with amazing celerity, and their flight is rapid and powerful.

The species placed among European birds, from the circumstance of its accidental visits, is the CREAM-COLOURED COURSER, or Swift-foot. (*Cursorius Isabellinus*, MEYER.) Three instances are on record of its having been seen in England ; nor does it appear that its capture in the neighbouring continent has been at all more frequent. It is a native of Africa, and more especially Abyssinia, where it is very numerous ; its sandy coloured plumage assimilating with the hue of the barren deserts, over whose expanse it speeds along, on foot, with incredible swiftness, in pursuit of its food : this consists principally of such insects as are there abundant. The general plumage is of a delicate fawn colour above, lighter beneath ; the back of the head and the quill-feathers being black ; but a white streak extends from above the eye to the back of the neck, beneath which, beginning behind the eye, runs a similar streak of black. Outer tail-feathers dusky near their tips. Beak black ; tarsi pale yellowish olive. The young birds have their plumage varied by dusky transverse bars, and want the black patch at the back of the head. Length nine inches.

We now come to the true Plovers, which, though they are still divided into several genera, are, nevertheless, closely united together by a general similarity of habits. Of these the genus *Charadrius* is the most typical. It is characterized by the beak being slender, straight, compressed, and shorter than the head ; the nostrils being

longitudinal slits in a membrane at the base. Tarsi moderate. Toes three before, none behind. Wings moderate, and pointed.

The genus *Charadrius* comprehends the Golden Plover, the Dotterel, the Ringed Plover, and the Kentish Plover, all natives of the British isles, besides many allied species peculiar to other parts of the globe; for, as regards geographical distribution, it is widely extended. Some species are inhabitants of open districts and wild wastes, both dry and marshy, whence they retire to the coast during the severity of winter. Others are constantly resident upon low extensive sand banks or beds of shingle about the mouths of rivers, or along a flat line of seashore. They associate in flocks, except during the immediate season of incubation, and after this period the old birds assemble again, for the purpose of migration, in which they precede the young; these, in similar bands, take their departure soon after. Insects and their larvæ, together with worms, constitute their food; and most are nocturnal feeders. Both on foot and on wing their speed is very considerable. Their moult is double, that is, both in spring and autumn, and their summer and winter plumage is often strikingly different. They deposit their eggs (which are always four in number) on the ground, or among the shingles of the beach, and generally without any artificial nest. The flesh of most is accounted excellent.

As the clearest and best example we shall select the GOLDEN PLOVER, (*Charadrius pluvialis*, LIN.) The markets of London are abundantly supplied with this bird during the winter season, its flesh being esteemed but little inferior to that of the woodcock; so that in the plumage of that portion of the year it is doubtless well known to many of our readers. The upper parts of the body are dark brown, beautifully spangled with golden yellow; the under parts, in winter, being dusky white, with darker marks on the chest; in March, however, a few black feathers appear on the breast, which gradually

augment in number, till at length, in May, a broad expanse of jet black, beginning above the beak, covers the front of the neck, the chest, and the under parts of the body. The margin of this black is bounded abruptly by a line of white, blending at its outer edge with the rest of the plumage. In the autumn this expanse of black disappears, and the dusky gray above described assumes its place.

Spread over the whole of Europe, the Golden Plover is by no means uncommon in our islands, frequenting heaths and swampy moors, but especially the barren hilly districts of Scotland and the adjacent counties, where it breeds; its nest consists of a few fibres of grass, in some favourable situation on the ground, among the heath. “The young, when hatched, are covered with a beautiful parti-coloured down of bright king’s yellow and brown. They quit the nest as soon as hatched, and follow their parents till able to fly and support themselves, which is in the course of a month or five weeks. The old birds display great anxiety in protecting their young brood, using various stratagems to divert the attention of an enemy; among others, that of tumbling over as if unable to fly, or feigning lameness, is the most frequent, and appears indeed to be the instinctive resort of those birds that construct their nests and rear their young on the ground. When aware of the approach of an intruder, the female invariably runs to some distance from her nest before she takes wing, a manœuvre tending to conceal its true situation; and the discovery of it is rendered still more difficult by the colour and markings of the eggs, assimilating so closely to that of the ground and surrounding herbage. The usual call of the Plover is a plaintive monotonous whistle, by imitating which it may frequently be enticed within a very short distance. In the breeding season a more varied call is used, during which it flies at a great elevation, and continues soaring round for a considerable time.” To the whistling of the Plover, our poet Thomson elegantly alludes in his opening lines on spring, while yet “the trembling year is

unconfirm'd," so that "scarce the bittern knows his time," to shake the marsh,

— " ————— or from the shore,
The Plovers when to scatter o'er the heath,
And sing their wild notes to the listening waste."

Towards the end of August, the duties of rearing their offspring being over, the Golden Plovers congregate in large flocks, which visit the fallows and newly-sown wheat-fields, where they sojourn till the severity of winter drives them to the shore. Here many remain, but some pass to the continent. The flight of this bird is strong and rapid, and the flocks, when disturbed, wheel round, and perform many evolutions in the air before they venture to settle again. Night is their time for feeding; during the day they rest crouched upon the ground, or standing with the head drawn down between the shoulders. Their food consists of worms, slugs, the larvæ of insects, &c.

Here we may pass to the genus *Vanellus*, distinguished from the True Plovers, (*Charadrius*,) chiefly by the presence of a very small hind toe. The bill is short and straight, the tarsi slender, the wings ample, and armed with a tubercle, or a sharp spur, just below the elbow-joint. The head is generally crested, or furnished with singular fleshy wattles about the base of the bill. The birds of this genus are inhabitants of open ground and plains, where the soil is moist and oozy; they feed on worms and insects.

The well-known LAPWING, or Pewit, (*Vanellus cristatus*,) is a good example.

This bird, one of the most beautiful and elegant of its family, is abundant in many parts of our island, as well as of the continent, especially Holland, where it assembles in immense flocks, multitudes being annually taken in autumn and winter for the table: its flesh at that season is of excellent flavour; but is said to be dry and unpalatable in summer. Nor are the eggs less relished than the

flesh of the Lapwing; on the contrary, they are esteemed especial delicacies, and are brought in great numbers to the London market, being known under the appellation of “Plover’s eggs.” The principal supply is from the open downs and warrens of Norfolk, and the fens of Lincolnshire and Cambridge.

No bird can exhibit more instinctive artifice than the Lapwing in the protection of its young, or more solicitude for their safety. Should man or dog approach the nest, the parent birds sweep close around the intruder, flutter, as if with broken wings, along the ground before him, now take wing, keeping so near as to make it seem easy to catch them; now wheel round, now dart forwards, uttering incessantly their mournful cry of *peweeet, peweeet*, till at length, having decoyed the intruder to a distance, up they mount, and leave him gazing in disappointment. As soon as the breeding season is over, both old and young, in large flocks gradually pass from the interior of the country towards the coast, where they spread themselves over low swampy meadows and heaths, in search of food.

The beauty of the Lapwing, and its utility in the destruction of worms, are qualities which induce many to render it a prisoner within the bounds of a garden; but when thus domesticated, it requires to be fed in winter, as its natural supply of food fails, and it is prevented from shifting its quarters to other places. Latham states that its mode of capturing worms is, “first by turning aside the worm-cast, and then treading round the hole in a circular manner,” so as to give a slight motion to the ground, which drives the worm from its retreat, when it is instantly seized and swallowed.

The contrasted black and white in the plumage of this bird at once distinguish it, so that it cannot be mistaken, even on the wing. The head is black, glossed with green, and an elegant crest of long slender black feathers, turned slightly upwards, arises from the occiput. The throat is black; the sides of the head and neck are white; the back and wing-coverts are greenish black, with purple and blue reflexions; the chest and

under parts are white; the upper tail-coverts are pale chestnut; the tail is white at the base, and black the rest of its length, except at the tip, which is white. Length thirteen inches.

The name of the Lapwing occurs in Leviticus, among animals prohibited as food. See chap. ii. 19.

One of the most singular examples of the present family, and which appears to connect the restricted genus *Charadrius* to certain groups of the family *Scolopacidæ*, is the STILT-BIRD, or Long-legged Plover, placed by Brisson in a genus termed *Himantopus*, of which the



THE STILT-BIRD.

characters chiefly consist in the bill being long, slender, straight, and depressed at the base; the tarsi of extreme

length, and slender; the toes, three before, united by a partial web at their base, which runs up the side of each toe, almost to its point; wings long and pointed.

Two species of this genus are all that are known, and of these the present (*Himantopus melanopterus*,) is the only European example. In England it is of rare accidental occurrence. In Germany and the south of France it is met with, but only as a bird of passage. Its native regions are Hungary, the eastern parts of Russia, and the adjacent districts of Asia, where the borders of inland seas and vast saline lakes afford it a congenial home. It is also to be met with in Egypt, and other parts of the African continent. Temminck states that “it breeds in the saline morasses of Hungary and Russia, and that its food consists of young frogs, larvæ, aquatic insects, &c.”

The very air of this bird, elevated on its long slender stilts, proclaims at once its nature; we see that it is a wader, well endowed for stalking through the marshes which spread around, or for coasting along lakes and inland seas. Should it, however, (for it is light and buoyant,) be carried off its footing by the waves, it is in no danger, for it swims with considerable dexterity, and soon regains its footing on the shore. Its flight is astonishingly rapid; but when running, or standing on the ground, its limbs appear tottering and unsteady. The general plumage of the upper surface is black; the head, neck, and under parts are white. The other species is American, and is well described by Wilson in his “American Ornithology.”

Among a vast number of examples, it may be noticed that to the present family belong the OYSTER-CATCHER, (*Hæmatopus ostralegus*,) so common on our low flat coasts, where it feeds on shell-fish, such as muscles, limpets, &c., and small crabs, and crustacea generally. The GREY PLOVER, (*Squatarola cinerea*.) The TURNSTONE, (*Strepsilas interpres*,) a bird found in every quarter of the globe, frequenting the rocky or gravelly shores of the ocean, where it searches for marine insects and small crustacea, by turning over the stones with its

strong wedge-shaped bill. The LITTLE SANDERLING, (*Arenaria calidris*,) a native of the sandy shores of the polar ocean, whence in winter it proceeds southwards, visiting our islands; and the PRATINCOLE, (*Glareola torquata*.) The Pratincole is too rare and remarkable a bird, however, to be passed over without a short notice. In the general form of its body, and in the power and manner of its flight, it is a swallow, and it feeds on insects, which it takes generally on the wing; sometimes, however, on the ground, by catching them as it runs along, which it does very nimbly; for, unlike the swallow in this respect, it is furnished with limbs long and slender, the toes being formed for walking, not for grasping or clinging.

Linnaeus, however, led by its similitude to the swallows, placed the Pratincole among them, mistaking similitude for affinity. Three species of Pratincole are all that are known; they form the genus *Glareola*, thus characterized: bill hard, swollen at the base, convex, curved, and compressed towards the point; the gape wide; the nostrils basal; legs rather long and slender; toes, three before and one behind; wings very long and pointed; tail forked.

The only species ever occurring in western Europe, and then only as a bird of passage, is the COLLARED PRATINCOLE, (*Glareola torquata*.) This elegant bird inhabits the borders of lakes and rivers, but especially the wide waste of morasses, which lie on the eastern borders of Europe, and the adjacent districts of Asia. It is common about the saline lakes and marshes of Hungary, where, says Temminck, in the marshy confines of Lakes Neusidel and Balaton I saw hundreds flying around me. They feed upon flies and winged insects, which live among reeds and aquatic herbage, darting upon them with astonishing velocity, and seizing them either on the wing or while running. In flight, the Pratincole is even more rapid than any of the swallows, so that it is enabled to perform long migrations with the greatest ease. Hence is it seen in Germany, France, and Italy; but very rarely in

Holland, or the British isles. In Tartary, and over central Asia, it is common wherever the localities are favourable to its residence. Its nest is placed among rushes or



THE COLLARED PRATINCOLE.

thick tufts of herbage; but little is known respecting its eggs as regards either colour or number. The general colour of the Collared Pratincole is brownish gray above; the throat is white, with a tinge of reddish, banded by a narrow line of black; the breast is dull brownish gray; the under surface dirty white; the upper tail-coverts are pure white; the tail is forked, and brownish black; the under wing-coverts are chestnut. Length nine inches. Of the two other species, which are smaller than the present, one is a native of Bengal and the southern parts of India, the other of New Holland.

The next family is that of the Cranes, *Gruideæ*.

FAMILY GRUIDÆ, VIG.—These birds were formerly placed by Linnæus and the older naturalists with the herons, (gen. *Ardea*,) but form a group very properly separated from them by modern ornithologists. They differ from the herons in several important particulars. The beak, for instance, is moderate, or even short, and blunt at the extremity; and the toes are short. Instead of deriving their sole subsistence from lakes and morasses, they live in a great measure on vegetable food, and frequent plains, newly sown fallow lands, and similar localities. The trachea, in most species, exhibits something remarkable in its structure, and in the common crane is singularly convoluted.

In some respects the members of this family bear a certain degree of alliance to the ostriches, (*Struthionidæ*,) and one, indeed, of their number may be called a crane among ostriches, an ostrich among cranes. This bird is the Gold-breasted Trumpeter; it is placed in a genus by itself, termed *Psophia*, characterized by a short, compressed, and slightly arched beak; the head and neck being covered with feathers like downy velvet, and by a naked circle round the eye.

The TRUMPETER, or AGAMI, (*Psophia crepitans*,) is as large as a common-sized fowl in the body, but stands much higher on the legs, and the neck is long. It inhabits the wilds of tropical America, and is gregarious, being found in large flocks. It does not appear to visit fens or marshes, or the margins of waters, but keeps entirely to the upland forests and mountains. Its speed is very great, and to this it is said to trust for the most part for safety, seldom taking to wing, and even when forced so to do, not rising more than a few feet above the surface of the ground.

This remarkable bird has gained the name of *Trumpeter* from a hollow internal sort of sound which it makes without opening the bill, and which, according to Pallas, is produced by a peculiar construction of the larynx or windpipe, which at first is about as thick as a swan's quill, and almost bony, but becomes much more slender,

loose, and cartilaginous when it enters within the chest, “where two semi-cylindrical canals, of a membranous texture, and capable of being extended, proceed from it.



THE TRUMPETER.

The air-bag” (for such these appear to be) “on the right side descends to the pelvis; and within the breast it is divided into three or four cells by transverse membranes. The air-bag on the left side is narrower.” The sound uttered is a hollow noise, resembling the cooing of a pigeon, or the syllables *too-too-too* repeated six or seven times with precipitation; during which the chest is seen “to heave, as in birds while singing, though the bill remains shut. It is in fact a sort of ventriloquism resulting from the vibration of the air forced into these air-bags, from the lungs, by the action of the muscles of the chest and back.”

The Trumpeter is often domesticated, and is extremely intelligent, bold, and familiar. It is not only “easily tamed,” says Monoucour, “but becomes attached to its benefactor with all the fondness and fidelity of the dog; and of this disposition it shows the most unequivocal proofs. When bred up in the house, it loads its master with caresses, and follows his motions; and if it conceives a dislike to persons, it will pursue them sometimes to a considerable distance, biting their legs, and testifying every mark of displeasure. It obeys the voice of its master, and even answers to the call of all those to whom it bears no grudge. It is fond of caresses, and offers its head and neck to be stroked; and if once accustomed to these familiarities, it becomes troublesome, and will not be satisfied without continual fondling. It makes its appearance as often as its master sits down to table, and begins with driving out the dogs and cats, and taking possession of the room; for it is so bold and obstinate, that it never yields, and often after a tough battle can put a middle-sized dog to flight. It avoids the bites of its antagonist by rising in the air, and retaliates with violent blows with its bill and nails, aimed chiefly at the eyes; and after it gains the superiority, it pursues the victory with the utmost rancour; and if not parted, will destroy the fugitive. By its intercourse with man, its instinct becomes moulded like that of a dog; and we are assured it can be trained to tend a flock of sheep. It even shows a degree of jealousy of its rivals; for, when at table, it bites fiercely the naked legs of the negroes and other domestics who come near its master.”

Though the above account of the character of the Trumpeter may be considered as extravagant, and far too highly coloured, it is doubtless founded upon truth, and cannot but lead us to desire a better acquaintance with a bird which few naturalists have opportunities of observing in a state of nature. It is said to scratch a hollow in the earth, at the foot of a tree, for the reception of the eggs, which are from ten to sixteen in number, and of a light green colour. The head (except a narrow naked circle round the eyes) and the whole of the neck are covered

with black velvety feathers ; on the breast they become large, and are rounded, their edges being of a glossy metallic purple and green. The back is covered with long silky plumes of a delicate gray, which hang gracefully over the wings. The wings are black, as are also the tail and under surface ; the feathers of the tail are soft and falling, but short ; and the feathers of the under surface are loose and hairy. The bill is black ; the tarsi pale yellowish olive.

To the genus *Psophia* succeed several species, all foreign, and distinguished by the shortness of the beak, compared to that of the Crane of Europe. They seem to fill up the chasm between the genus just alluded to and that of the truly typical genus of the family, namely, *Grus*. Of these we may notice the DEMOISELLE, or NUMIDIAN CRANE, (*Anthropoides Virgo*, VIEILL.) and the STANLEY CRANE, (*Anthropoides Stanleyanus*,) which are the only examples of their genus.

The Demoiselle is so named from the exquisite grace and symmetry of its form and the elegance of its deportment. In total length it measures three feet six inches. The top of the head is gray. Behind each eye there springs a tuft of white feathers, passing backwards to the occiput, where they meet and form a drooping crest of soft loose plumes about four inches in length, which undulate with every movement. The neck is black, and at its fore part is garnished with long, slender, pointed feathers, which depend from the chest. The general plumage is of the most delicate slaty gray, and the secondary quill-feathers are elongated into pendent plumes which fall on each side over the quill-feathers, adding much grace to the wearer. Their colour is of a dusky black.

The Demoiselle is a native of Africa, and, like the Cranes in general, is migratory in its habits. “ It extends along the Mediterranean and western coasts, from Egypt to Guinea, but is most abundant in the neighbourhood of Tripoli,” and throughout the adjacent region. “ It arrives in Egypt in considerable numbers at the period of the

inundation of the Nile, and makes its appearance in Constantinople in the month of October, being then probably on its passage from the Black Sea towards the south. It is also stated to have been met with in the interior of South Africa, in the neighbourhood of the Cape."

This beautiful bird bears the English climate well, and soon becomes familiarized. In France it has bred in captivity, and one of the young ones lived for four-and-twenty years. Several fine examples are in the Zoological Gardens.

Allied to the preceding are two species of Crowned Cranes, constituting the genus *Balearica* of Brisson. Of this, one species is the CROWNED CRANE, (*Balearica pavonina*,) which differs in the most striking manner from the demoiselle. "In size it is considerably larger; and although perhaps less graceful in its form and attitudes, it displays a much higher degree of elegance in the varied colours of its plumage. In this point of view, if the dress of the demoiselle be compared to the tasteful simplicity of a village maiden, that of the Crowned Crane bears as strong an analogy to the artful combinations of fashionable skill." In height this beautiful bird measures about four feet. The front of the head is covered with short, black, velvety feathers; and from the top, or rather occiput, there rises a very remarkable crest of slender bristle-like filaments, four or five inches in length, and diverging from each other, each having a spiral twist throughout its length; their colour is yellowish, but their edges are fringed with minute black hairs. The sides of the head are naked, and the skin is partially white, being tinged more or less extensively with a deep blush of scarlet. Two scarlet wattles hang from the throat. The general plumage is of a bluish slate colour, but the primary quill-feathers and the tail are black; the secondary quill-feathers, which are long, are of a rich brown; and the wing-coverts are pure white.

This splendid species is a native of Guinea and the neighbouring countries, and also of Cape Verd. It frequents swampy places, and subsists, like other cranes, on

worms and small fish, but especially grain and other vegetable substances. “At Cape Verd, we are told, it approaches so near to a state of domestication, as to come,



THE CROWNED CRANE.

of its own accord into the poultry yards, and feed along with the tame birds confined in them. It perches in the open air to take its rest, and walks with a slow, and somewhat stately gait; but with its wings expanded and, assisted by the wind, it scuds along with great rapidity.

Its flight is lofty, and capable of being continued for a very considerable time." Its voice is loud and sonorous. In captivity it is gentle and familiar. Like the Cranes in general, it reposes, resting on one leg, with its neck bent inwards, and its body maintained almost horizontally. It has, however, an attitude peculiar to itself, namely, that of stretching its neck upwards, and bringing its body into an almost upright position; in which it remains for a minute or more, gazing stedfastly at the spectator, and then uttering once or twice a hoarse kind of chuckle, as if in defiance. It bears our climate well.

The genus *Grus* follows, in which we find the bill longer than the head, straight, strong, and compressed laterally; the upper mandible having a furrow on each side, in which are placed the nostrils; the wings rounded, and the secondaries elongated into drooping plumes.

Our example is that noble and celebrated bird, the COMMON CRANE, (*Grus cinerea*.) The migrations of the Crane have been noticed in the earliest writings; and as were the habits of the bird when Jeremiah (see ch. viii. 7.) alluded to them, so are they now. Spread over a great portion of Europe, Asia, and Africa, and associated in large flocks, they journey northwards, in spring, to their accustomed breeding places, and return southwards in autumn. Hence, as Latham observes, they are "met with in great flocks throughout northern Europe and Asia; in Sweden, Russia in general, Siberia, as far as the river Anadyr, migrating even to the arctic circle. They also breed in Spain; and are said to have formerly bred in England, where they were regular visitors, before cultivation had deprived them of congenial situations, by the inclosing of waste tracts of land, and the draining of wide swamps and marshes. In confirmation of this, we hear of statutes, imposing a fine upon those who take away the egg of a Crane, or a bustard. Willoughby notices them as coming in flocks into the fenny counties, Lincolnshire and Cambridgeshire; and in prior ages they are said to have been served up at festivals; no less than two hundred and

four have been served at the feast of Archbishop Nevill, in the reign of Edward the Fourth. In Holland, the favourite asylum of the stork, the Crane is rarely seen,



THE COMMON CRANE.

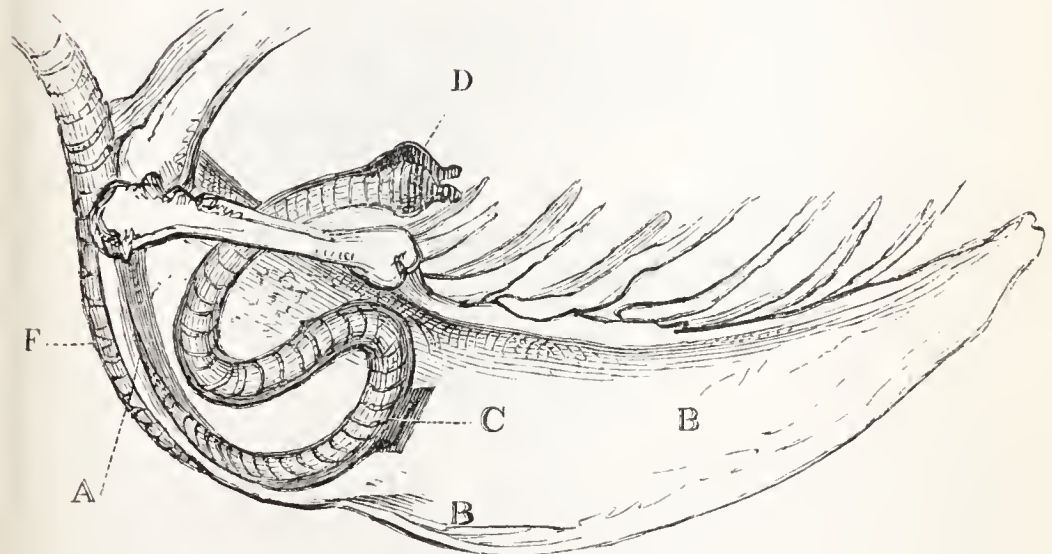
and then only when driven there by accidental causes ; and as it respects England, however abundant it may once have been, it is now so rarely seen or heard of, that a few instances only, within the last fifty years, are upon record.

In winter, the Crane retires to the warmer regions of the south, Syria, Egypt, Africa, and the adjacent countries. Its aërial voyages are made at so great an elevation, that though the loud cries of the passing flock may be heard distinctly, the birds are themselves beyond the

limits of our vision ; these flights often take place during night.

The Crane makes its nest among long herbage, reeds, and the luxuriant vegetation of swampy tracts, and sometimes on isolated ruins ; the eggs are two, of a pale dull greenish colour, blotched with brown. In addition to worms, frogs, and snails, grain and vegetables constitute the favourite food of this bird ; hence it is found to invade extensive plains under cultivation, and newly sown with corn.

We have spoken of the voice of the Crane, (and the same observation applies more or less to the whole family,) as singularly loud and sonorous, so as to be heard while the bird is out of sight. All the Cranes have some peculiarity in their organs of voice, as we have seen in the trumpeter bird ; but in this and in other examples, it consists in convolutions of the trachea before entering the chest. In the present bird, the trachea, instead of going directly into the chest, enters a large cavity between the two plates composing the keel of the breast-bone, and is there doubly reflected before it emerges and ascends to pass into the chest. This peculiarity will be best seen in the two subsequent sketches ; the first re-



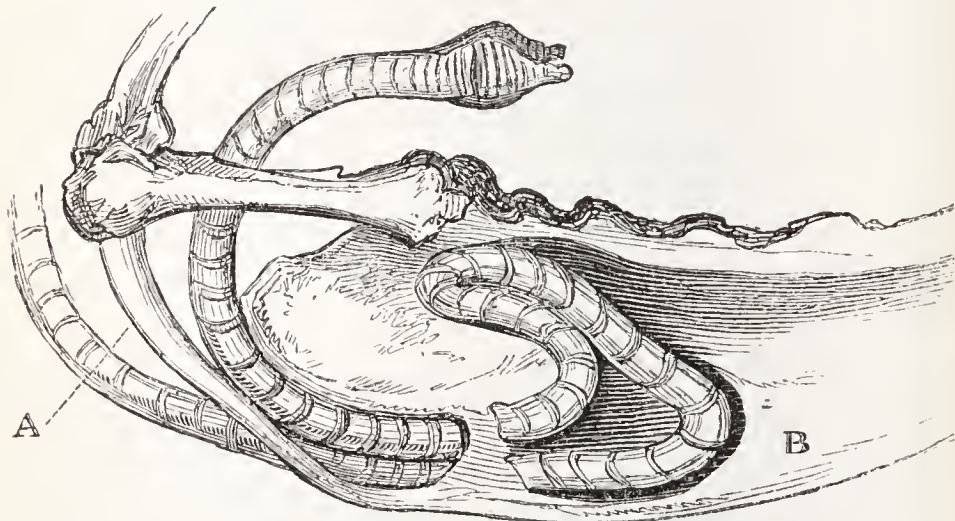
DEMOISELLE CRANE.

presenting the breast-bone and trachea of the young

Demoiselle Crane; the next the same parts of the young of the Common Crane.

In the first example the tube F, quitting the neck passes between the branches of the *furcula* (or merry-thought, as it is popularly called) A, to the interior edge of the keel of the breast-bone, (*sternum*,) B B, which is grooved to admit the fold. In this groove the fold of the trachea is bound by the cellular membrane: at the point C, a small portion of the bone is sawed away, to show the depth of the groove in which the trachea is imbedded. D is the inferior larynx.

In the Common Crane (our sketch being from a young male) the trachea is seen running a convoluted course in a cavity or chamber in the substance of the keel of the breast-bone, between the two plates composing it, one of which is cut partially away to expose the course of the tube. In this bird, as in the preceding, the *furcula* A, is not a distinct bone, as in most birds, but is solidly united to the keel of the *sternum* B.



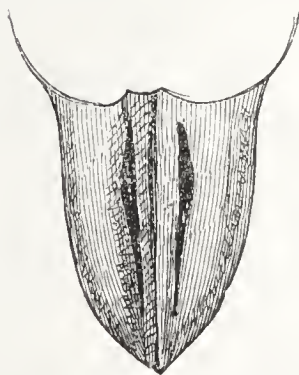
COMMON CRANE.

The general colour of the Crane is of a dark gray, the top of the head being naked and red; on the back of the head, and front of the neck, the gray approaches to black. The secondary quill-feathers are elongated, arched, and pendent, with loose flowing barbs. Beak and tarsi black. Length three feet eight or ten inches.

Leaving the Cranes, the family of Herons next presents itself.

FAMILY ARDEIDÆ, or HERONS.—This extensive family contains many groups, varying from each other in certain details, but all agreeing in general characteristics. They are strictly carnivorous, living on fish, reptiles, and even the smaller mammalia, which frequent the borders of lakes or marshes. Formed essentially for wading, their limbs are long, as is the neck also; but the beak varies considerably, or rather is modified according to the manner in which the food is to be obtained. In most it is long and sharp-pointed. The toes are generally long and slender, so as to cover a wide area, and thus keep the bird from sinking into the oozy mud, and the inner edge of the claw of the middle toe is mostly pectinated. A few of the most remarkable examples, in illustration of the family, may be selected.

First, the BOATBILL, (*Cancroma cochlearea*, LIN.) The genus *Cancroma* contains but one species. Its food and general habits certainly place it among the Herons, though its beak at first would seem to imply otherwise; it resembles a boat reversed, having a strong ridge or keel down the middle of the upper mandible, and the sides spread out and bowed, thus:—

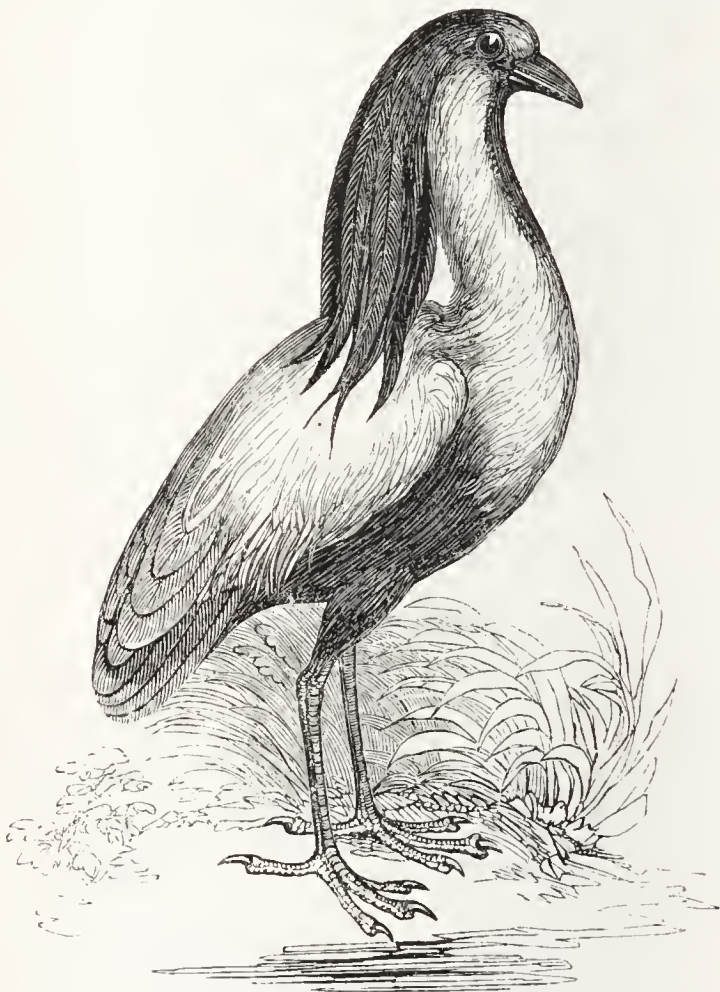


UPPER VIEW OF THE BEAK OF THE BOATBILL.

The nostrils are situated in a furrow along each side of the keel; the point is sharp, and the edges of each

mandible are hard and cutting. The toes are three before, and one behind.

The Boatbill is a native of Guiana, Brazil, and the warmer regions of America, frequenting rivers and lakes, from which it obtains its food.



THE BOATBILL.

Patiently keeping watch, upon some branch which stretches over the water beneath, it marks its finny prey as they glide along, and, like the kingfisher, precipitates itself upon them with unerring aim. Of its mode of incubation, or the minuter details of its history, little is known. From the top of the head arises a long crest of jet black feathers, narrow, pointed, and falling down upon the back, producing a most beautiful effect. The throat

is bare; the forehead and neck (of which the feathers are elongated, and form a sort of mane very characteristic of the present family) are grayish white; the back, also ornamented with long silky feathers, is of a delicate gray; the tail is white; the sides are black; the middle of the under surface deep reddish brown; bill blackish; legs brown; claw of middle toe pectinated. In size the bird is somewhat larger than a common duck. It is rare in museums.

The true Herons are contained in the restricted genus *Ardea*, which includes the bitterns also. We find the bill long, straight, sharp, compressed laterally, with the gape extending below the eyes; the edges of the mandibles are frequently armed with sharp denticulations, and the upper mandible is furrowed by a groove on each side, throughout its whole length, in which, near the base, are situated the nostrils. The space between the eye and the beak is destitute of feathers. The tarsi are long, the legs naked above the joints, the toes long and slender, and the inner edge of the claw of the middle toe is deeply pectinated, or comb-like. The use of this peculiarity, unless it be to enable the bird to hold its slippery prey beneath its feet more firmly while it destroys it, is not made out. The reader will remember, that in a very different group of birds, the Goatsuckers, (*Caprimulgus*,) it was expressly noticed, as there occurring. It is not a little strange that it should be again met with here, in a race of birds differing most essentially in all their habits and instincts.

To return, however, to the Herons. Their food consists of fish and reptiles, and night is the season of their activity. Their sight is keen; their stroke sudden as thought. Their flight is lofty, their wings being ample, and their body light.

The COMMON HERON (*Ardea cinerea*) is well known as the desolator of store-ponds, and small sheets of water. It is spread over almost every part of the Old

World, where wood and water favour its wants and habits. In some countries it is migratory, but in England it is a permanent resident. Solitary, shy, and suspicious, the Heron sits, during the day, roosting on his accustomed bough in the densest part of the wood, where the trees are tall; or if no such covert be near, he may be observed, standing on one leg, immoveable as a statue, in the middle of some wide morass, but so situated as to command a view of the prospect around. Ever watchful, his eye detects the intruder while yet at a distance; roused from his wakeful repose, he soars aloft, and wings his course away to some distant and more lonely haunt.

The fishing time of this bird is generally before sunrise, and after sunset, and especially during moonlight. The lover of nature, if at such a time abroad, may see him standing in the water, intent upon his prey; the head drawn back between the shoulders ready for the stroke; the eye glistening with eagerness; but the posture fixed as if immoveable. Sudden as lightning and with unerring aim, arrow-like he launches his beak—a fish glitters transfixed upon its point.

Sometimes, however, the Heron fishes by day, and may be seen in the shallows of ponds and rivers. Besides fish, water-rats are eagerly seized, killed by a blow, and swallowed whole. During the breeding season the Heron assembles in flocks, and, like the rook, resorts to a permanent settlement, which has served as a nursery for many generations. These breeding stations, or heronries, as they are termed, are always in the loftiest trees which the wood affords; and the nests, which are large flat masses, constructed of sticks, are frequently placed, several close together, on the same tree. Few of these heronries are now in existence, compared with their number in former days, when the killing of one of these birds, except in the lawful way, subjected the offender to fine or imprisonment. Consequently the bird is now by no means so common as it was when strictly preserved for the favourite sport of hawking, in which the nobility alone were per-

mitted to join. Its soaring flight, its resolute defence when pressed to the last, (often spearing the falcon in his swoop,) rendered it the most valued of game. Nor was its flesh, though now accounted uneatable, considered inferior to that of the finest wild-fowl.

When taken young, the Heron may be easily tamed; but old birds sullenly refuse food, and soon die. When wounded, it makes a most energetic defence, striking at the eyes of a dog with great violence, or at the hand of the sportsman, and inflicting severe injury.

The young are five or six weeks before they are able to quit the nest, during which time they are plentifully supplied by the parents.

A singular fact is related (see Selby's Ornithology, vol. ii. p. 13,) by P. Neill, Esq. of Canonmills, near Edinburgh, respecting a tame Heron, by which it appears that this bird is not incapable of swimming. This gentleman had a pair of these beautiful birds, and the following is part of his narration:—"A large old willow tree had fallen down into the pond, and at the extremity, which is partly sunk in the sludge and continues to vegetate, water-hens breed. The old cock Heron swims out to the nest, and takes the young if he can. He has to swim ten or twelve feet where the water is between two and three feet deep. His motion through the water is slow, but his carriage is stately. I have seen him fell a rat by one blow on the back of the head, when the rat was munching at his dish of fish."

The head, throat, breast, and under parts are pure white; the sides and back of the neck pale gray; the front of the neck has a double row of oblong spots of black; the long plumes, which depend from the lower part of the neck, are white or tinged with gray; from the back of the head springs a beautiful crest, six or eight inches in length, of a deep black, as are the feathers of the sides and thighs; the feathers of the back are long, loose, and drooping, and of a pale gray; the wings are bluish gray, but the quill-feathers are black; tail gray; bill and eyes yellow; legs olive green. Length three feet three or four inches.

Closely allied to the Heron of Europe, is the GREAT HERON of North America, (*Ardea Herodias*.) Indeed it differs only in being larger, its general habits and manners being precisely the same. “He has great powers of wing,” says Wilson, “flying sometimes very high, and to a great distance; his neck doubled, his head drawn in, and his long legs stretched out behind him, appearing like a tail, and probably serving the same rudder-like office.” “He is most jealously vigilant and watchful of man, so that those who wish to succeed in shooting the Heron, must approach him entirely unseen and by stratagem.” The favourite breeding places of the Great Heron are in the midst of extensive morasses, where tall cedars, rising out of the swamps, to the height of fifty or sixty feet without a limb, and entwining their branches, high over head, so as to spread gloom and twilight below, afford shelter and security.

Besides the Herons, the present genus comprehends the GREAT WHITE EGRET, (*Ardea Egretta*,) and the LITTLE EGRET, (*Ardea Garzetta*,) from the former of which are obtained the long loose floating plumes, so much valued as ornaments.

The Great Egret is very extensively spread; it is common in Asia, the eastern parts of Europe, and the north of Africa; and it is widely diffused over the American continent. Its manners and food are similar to those of the heron, which it resembles also in its mode of nidification, and of congregating in flocks to form heronries. Its plumage is snowy white; and from the back arises a plume composed of a number of long tapering shafts, thinly furnished on each side with fine flowing hair-like threads, several inches in length. This beautiful plume falls gracefully down the back, so as to conceal the tail entirely. The total length of the bird is about three feet six inches.

In addition to the egrets, we may notice the Bitterns also, of which there are several species; they differ from the herons in one or two respects, and especially in their

habits of nidification, and hence have been separated, by some authors, into a distinct genus, termed *Botaurus*. They build on the ground among reeds, osiers, or the luxuriant vegetation of swamps, where they also remain concealed during the day. They are recluse and solitary, and never associate in bands for the purpose of breeding in one common spot.

The COMMON BITTERN (*Botaurus stellaris*) is well known in England, and is abundantly spread over Europe, Asia, and North Africa. It frequents wide morasses, and the oozy banks of large rivers, where reeds and tall grasses afford it a retreat, and a convenient breeding-place. The nest is made of rushes, and the eggs are from three to five in number, and of a pale greenish ash-colour. It is not easy to rouse the Bittern by day, and when forced to take wing, its flight is heavy and slow; but as evening approaches it becomes alert, often soaring in a spiral manner, upwards, till quite out of sight, at the same time making a singular cry. The Bittern has, however, another note, peculiar to the breeding season, which is first heard in February. This noise, (the Bittern's boom,) which is not unlike the deep-toned roar of a bull, was supposed to be made by the bird plunging his bill into the mud; hence Thomson says, "With bill ingulfed to shake the sounding marsh." It is however produced by the unaided organs of voice. Frogs, rats, mice, reptiles, fish, &c. constitute the food of this bird, and night is the season of activity, when it searches for its prey.

Like the heron, the Bittern, when wounded, defends itself with determined obstinacy, throwing itself on its back, like a bird of prey, and darting its sharp beak with great force at its foe. It was much esteemed in the days of falconry. In size, the Bittern is rather less than the common heron. The plumage is beautifully varied with spots, bars and dashes of black on a fine reddish yellow ground. The feathers of the head and neck are long, and are capable of being thrown forward.

Before concluding the genus *Ardea*, we may observe

that the heron is among the animals forbidden as food by the Mosaic law. The Bittern is more particularly alluded to. Isaiah, foretelling the doom of Babylon, a doom which, its ruins show, has literally come to pass, even in the minutest points, writes under the inspiration of Him who is the God of all, I will “make it a possession for the Bittern, and pools of water; and I will sweep it with the besom of destruction, saith the Lord of hosts.” Isaiah xiv. 23. Dr. Keith observes, respecting this prophecy, “The plain on which Babylon stood is, in many places, converted into morasses, and the deep excavations into “pools of water” by the annual overflowing of the Euphrates. The ruins are then inundated so as to render many parts of them inaccessible, and large deposits of the water are left stagnant in the intervening hollows, literally verifying the threat denounced against it.”

A similar doom we find in Zephaniah, predicted of Nineveh. “Flocks shall lie down in the midst of her, all the beasts of the nations: both the cormorant and the Bittern, shall lodge in the upper lintels of it; their voice shall sing in the windows; desolation shall be in the thresholds, for he shall uncover the cedar-work.” Zeph. ii. 14.

We now pass to the Storks, (*Ciconia*,) characterized by a long, sharp, powerful, cylindrical beak, unimpressed with furrows; a naked skin surrounding the eyes; long tarsi, the toes before being united by a membrane as far as the first joint; short claws without any trace of pectinated edges; and ample rounded wings.

The birds of this genus are gregarious, living permanently in flocks; many are migratory: they mostly prefer flat marshy countries; their food consists of reptiles, and small mammalia, and their appetite is voracious. In the countries which they inhabit, they are held in high esteem for their utility in the destruction of reptiles, and the removal of offal.

Our first example is the WHITE STORK, (*Ciconia*

alba.) “Yea, the Stork in the heaven knoweth her appointed times.” Jer. viii. 7. The gentle and social disposition of this bird, conjoined with its utility, has



THE WHITE STORK.

caused it to be regarded in all ages and countries with peculiar complacency. In ancient Egypt it held the next place to the sacred ibis; and in many parts of Africa, and the East, is still regarded with reverence.

In the month of March, or beginning of April, the Stork arrives in small bands or flocks in Holland, where it universally meets with a kind and hospitable reception; returning year after year to the same town, and the same chimney-top, it re-occupies its deserted nest; and the gladness these birds manifest in again taking possession

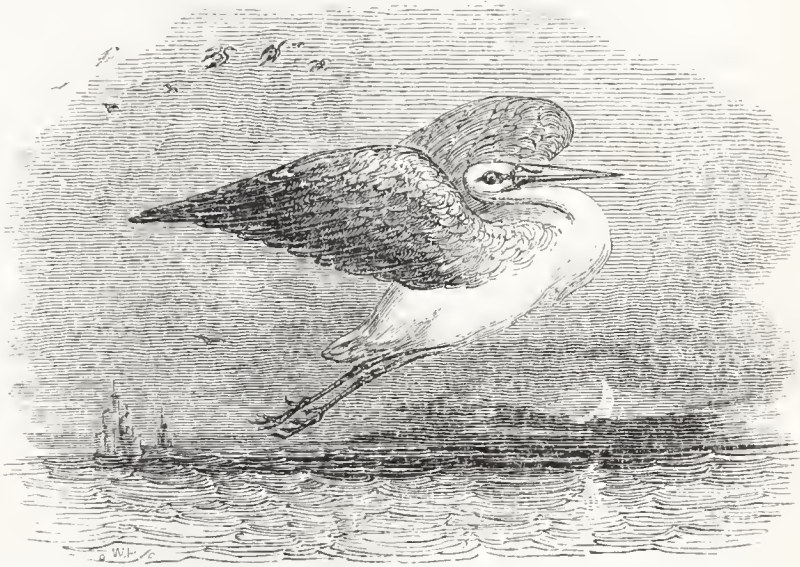
of their dwelling, and the attachment they testify towards their benevolent hosts, are familiar in the mouths of every one." Nor is the Stork less remarkable for its affection towards its young; and the story is well known of a female bird, which, during the conflagration at Delft, chose rather to perish with her young than abandon them to their fate. Incubation, and the rearing of the young being over by August, the Stork, in the early part of that month, prepares for its departure. The north of Africa, and especially Egypt, are the places of its winter sojourning, for there the marshes are unfrozen, its food is in abundance, and the climate is congenial. Previous to setting out on their airy journey, multitudes assemble from the surrounding districts, chattering with their bills, as if in consultation. On the appointed night, a period which appears to be universally chosen by the migratory tribes, they mount into the higher regions of the air, and sail away southwards to their destined haven.

The north of Africa, and especially Egypt, is the wintering place of this bird. In spring it spreads itself not only over Holland, but also over parts of France, Sweden, Germany, and Poland. In England it is a rare and accidental visitor. Mr. Selby informs us, that in some towns in Holland and Germany, "Storks are frequently taken when young and domesticated, and these are kept in the fish and other markets to devour the offal, and thereby prevent the accumulation of filth, which would otherwise necessarily happen. Such I met with in Amsterdam, and some other towns in Holland."

The nest of the Stork is formed of twigs and sticks, and the eggs, from three to five in number, and nearly as large as those of a goose, are of a yellowish white. Of the countless multitudes in which the Stork assembles, in order to perform its periodical migrations, some idea may be entertained from Dr. Shaw's account of the flocks, which he witnessed leaving Egypt, and passing over Mount Carmel, each of which was half a mile in breadth, and occupied a space of three hours in passing over. When reposing, the Stork stands upon one leg, with the neck bent backward, and the head resting between the

shoulders. Such is also its attitude when watching for its prey. Its motions are stately, and it stalks along with slow and measured steps. Its plumage is pure white, with the exception of the great wing-coverts and quill-feathers, which are black. Bill and legs, red; length, three feet three inches.

The Stork is often alluded to in the Holy Scriptures; we find it among forbidden meats. Jeremiah alludes to its migrations in the line at the head of our description. In Psalm civ. 17, we find this expression, "As for the Stork, the fir-trees are her house;" and it appears that in eastern countries, where the houses have flat roofs, which are used for walking, or even sleeping upon, and are in fact more frequented during summer than the inner rooms,



THE STORK FLYING.

and are destitute moreover of tall stacks of chimneys, the Stork makes use of the flat masses of foliage and level branches of lofty firs or cedars upon which to place its nest.

Allied, in general form and habits, to the former is the BLACK STORK, (*Ciconia nigra*.) It is, however, almost unknown in Holland, but visits the wildest districts of Russia, Siberia, Hungary, and Poland. Instead of domesticating itself with man, it avoids human habita-

tions, resorting to dark forests in the midst of impenetrable morasses, and builds its nest on the summit of the loftiest pines. Its food consists of reptiles, fish, &c.

In the genus *Ciconia* are placed three gigantic species of Stork, which possess characters giving them a title to the rank of an independent genus. They are natives, one of Senegal and tropical Africa, one of continental India, and one of Java and Sumatra. They are distinguished by the absence of feathers on the head and neck, by the presence of a pendulous fold of skin from the fore part of the chest, forming a sort of dewlap, and by the great magnitude of the beak.

Some degree of confusion, as it regards the identity of the species, has arisen in consequence of a misapplication of names by M. Temminck, who applied the term *Marabou* to the Indian species, which truly belongs to that of Africa. *Marabou* is the native name in Senegal, and adopted in Europe, of plumes obtained from each of these Cranes, which far exceed those of the Ostrich in beauty, softness, and lightness; but as the plumes of the Indian species are much the finest, “M. Temminck thought fit to transfer to that bird the African title, and rob it of its Indian appellation, *Argala*, bestowing this upon the African.” The confusion thus arising has been ably cleared up in the appendix to Major Denham’s Travels in Africa.

The three species are the MARABOU CRANE of Africa, (*Ciconia Marabou*;) the ADJUTANT, or ARGALA, of Bengal, (*Ciconia Argala*;) and a Javanese species described by Dr. Horsfield, (*Ciconia Javanica*, Horsf.)

In their habits these gigantic birds bear a close resemblance to the white Stork of Europe, but become even more familiar, “and in consequence of their larger size, render more essential service in the removal of carrion, offal, and other nuisances.” This important office they share with the vultures, and like those birds are “universally privileged from all annoyance, in return for so meritorious an exertion of their natural propensities. They seem to be constantly attracted by the heaps of offensive

substances collected in the villages and towns, which they devour without scruple, and in immense quantities.”

The Adjutant arrives in Bengal before the rainy season. Its gape is enormous, and its voracity astonishing; not that it is ferocious towards man; quite the contrary; for it is peaceable and even timid; but small quadrupeds are swallowed without any scruple. In the stomach of one, as Latham states, were found a land tortoise ten inches long, and a large black cat entire. The plumes which are so much valued are the under tail-coverts; their texture is inconceivably delicate and floating; “a good idea may be formed of their lightness from the weight of one which measured eleven inches and three-quarters in length and seven in breadth, and only balanced eight grains.”

Of the African Marabou Crane, the voracious and omnivorous propensities are attested by Major Denham; carrion, reptiles, and small quadrupeds are swallowed at a bolt, with indiscriminate voracity. Smeatham, who resided at Sierra Leone, has given an interesting account of this bird. He observes that the adult bird will often measure seven feet; and that the head, covered with white down thinly dispersed, is not unlike that of a gray-headed man. It associates in flocks, which, when seen at a distance, near the mouths of rivers, coming towards an observer, with their wings extended, as they often do, they may readily be mistaken for canoes on a smooth sea. “One of these, a young bird about five feet high, was brought up tame, and presented to the chief of the Bananas, where Mr. Smeatham lived; and being accustomed to be fed in the great hall, soon became familiar; duly attending that place at dinner-time, placing itself behind its master’s chair, frequently before the guests entered; the servants were obliged to watch narrowly and to defend the provisions with switches, but, notwithstanding, it would frequently snatch something or other, and once purloined a whole boiled fowl, which it swallowed in an instant. Its courage is not equal to its voracity; for a child of ten years soon puts it to flight with a switch, though it seems at first to stand on its defence, by threatening with its enormous bill widely extended, and

roaring with a loud voice like a bear or tiger. It is an enemy to small quadrupeds, as well as birds and reptiles, and slily destroys fowls and chickens. Every thing is swallowed whole, and so accommodating is its throat, that not only an animal as big as a cat is gulped down, but a shin of beef broken asunder serves it but for two morsels.



THE MARABOU.

It has been known to swallow a leg of mutton of five or six pounds, a hare, and also a small fox.”

The Marabou is somewhat smaller than the Argala, those we have seen seldom exceeding five feet, though, according to Smeatham, it grows much larger. The plumage of the upper surface is of a greenish black; the neck and pendulous fold, or pouch, reddish flesh-colour; the plumage of the under surface pure white. Bill, livid yellow; legs, dusky black.

The Argala, besides differing in size, is distinguished by the plumage of the upper surface being of a uniform dull black, unglossed with green.

The genus *Platalea* next comes under review. It contains those remarkable birds the Spoonbills, of which three species are known; one the WHITE SPOONBILL, inhabiting Europe; another the ROSEATE SPOONBILL, confined to America; the third found in the Philippine and other Asiatic islands. The generic characters consist in the breadth and flatness of the beak, and its dilatation at the extremity into a spoon-shaped termination; and also in the toes being united by membrane as far as the second joint.

In their manners the Spoonbills closely resemble the cranes. They live in flocks on the banks of rivers, lakes, and wooded marshes, where they obtain their food, consisting of small fish, shells, insects, and aquatic worms. In procuring their prey, they do not dart out the beak, but use it much in the same manner as a duck, feeling in the mud and turbid water with the broad termination, at the same time rapidly opening and shutting the mandibles. They are often obliged to swim, which they do with considerable facility, owing to the extent of webs between the toes. The tops of high trees, in the vicinity of rivers, lakes, or morasses, are their usual breeding-places; but where trees do not exist, they arrange the nest on thick bushes, or among reeds, or the luxuriant herbage of marshes.

The White Spoonbill is migratory like the stork, visiting the northern districts of Europe in summer, and retiring southwards on the approach of winter. Africa is the place of its retreat, over which continent it is spread very extensively. In Europe it is seldom met with in

countries far inland, except on the banks of the larger rivers ; but Holland is its favourite residence. Shy and retiring, it prefers the more remote marshes, the mouths of rivers, and the borders of lonely sheets of water surrounded by wood ; but it soon becomes familiar in captivity. Its visits to our island, though not very rare, are merely accidental ; doubtless, however, if undisturbed, it would sojourn here during the summer.

The general plumage of the Spoonbill is white, with the exception of a pale reddish yellow band on the chest ; the head being ornamented with a beautiful pendent crest of pale buff or yellow. Bill, black with a yellow tip ; legs, black. Total length, two feet six inches.

The next genus, *Phœnicopterus*, contains that remarkable bird the Flamingo, of which two species, if not three, are recognised ; for it is probable that the Flamingo of America will be found to be truly different from the Flamingos of the old world. The principal characters of this genus are as follows. Bill strong, large, conical towards the point, and the upper mandible bent at a sud-



HEAD OF FLAMINGO.

den angle ; the lower mandible the largest, and each having serrated edges. Tarsi very long ; the toes united

as far as the claws by intervening membrane. Wings moderate.

The remarkable figure and proportions of the FLAMINGO (*Phenicopterus ruber*) at once indicate it to be a genuine wader. It is, indeed, a bird expressly qualified for the situation assigned it; low muddy coasts, near the mouths of the larger rivers, the borders of saline marshes,



THE FLAMINGO.

creeks, lagoons, and inland seas, being its places of residence. Its neck is slender and of great length; in the specimen before us it measures two feet, and the legs the same; the body being less than that of a common goose, slender, and tapering; thus it is enabled to wade through shallows and morasses with great security: but as the Flamingo frequents the coast of the sea and the adjacent marshes, the power of swimming is granted to it as an additional provision, and its toes are partially webbed;

thus it may fearlessly venture even beyond its depth, nor fear being carried away by the retiring tide. Its food consists of small fish, shells, and water insects, for the capture of which its beak is most singularly constructed; in length it is nearly five inches, the upper mandible is bent downwards in the middle, at an acute angle, as if broken, the space from the angle to the point being a broad flat plate, of a somewhat oval figure; the lower mandible, which is the largest, is so adjusted as to fit the angle with its edges, its under surface being gently arched downwards. The edges of both mandibles are furnished with a row of serrations or tooth-like eminences, those of the upper being the largest. The use of these is like a strainer, for allowing the water to pass through, but retaining any small body, as an insect or a fish, for farther investigation. In searching for food among the mud at the bottom of waters, the upper and not the under mandible is applied to the ground; the flat portion of its surface being well adapted for pressing close down upon the soft bed of the marsh or creek; hence in that situation the inferior mandible is placed uppermost, and by its motion works the disturbed and turbid water through the two, as we see in ducks and other aquatic birds. The tongue is large and fleshy, and the sense of taste probably acute.

The Flamingo inhabits a wide range over the hotter portions of the globe; it is found along the borders of the Mediterranean, in small flocks; abounds on the coast of Africa from north to south, and on the adjacent isles; and visits the shores of the Caspian Sea. In the warmer latitudes of America it is also very common, especially on the coasts of Peru, Chili, Brazil, the island of Cuba, and the Bahamas.

Timid and distrustful, it does not readily allow itself to be approached by man; hence, in order to get within gunshot of a flock, it is necessary to have recourse to stratagem.

During the greater part of the year, the Flamingo associates in flocks, which, however, separate for the purpose of breeding.

The mode of incubation adopted is not a little curious ; if its nest were constructed like that of birds in general, its long limbs would prove awkward impediments, continually in the way. Besides, the Flamingo never sits down, but rests standing on one leg. To obviate every inconvenience, and produce a harmony unbroken even in minor details, (as is indeed ever observable in nature,) the instinct which the almighty Creator has implanted in this bird teaches it to build a nest accommodated to its form and habits. The Flamingo raises a nest, if nest it can be called, of mud in the form of a hillock, and slightly concave at the top ; here the female lays two large white eggs, and sits to hatch them, her legs hanging down on each side of this singular mound, and the toes just touching the earth at its base. It is also said, that when circumstances do not permit the formation of such a pyramid of mud, the bird avails itself of any natural bank or projecting ledge of rock. The height of the Flamingo in its natural attitude is about four feet ; when in full plumage, its colour is extremely rich and brilliant, being of a fine deep scarlet on the back, and roseate on the wings, the quill-feathers of the wings being jet black. A flock of these tall and splendid birds, moving about on the beach, their plumage reflecting the glowing rays of the sun in a tropical clime, is a sight never to be forgotten. The full plumage of this bird is, however, not attained until its third year : the first year its livery is of a grayish clouded white ; the second, the white is purer, but the wings are tinted with a beautiful rose colour ; on the third year, it attains the last stage, which remains, the hues becoming only more intense during the succeeding years. The flesh of this bird, though not very palatable, is occasionally eaten : among the luxurious Romans of ancient days, its tongue was reckoned an especial delicacy.

Passing over the genus *Tantalus*, which is characterized by a beak slightly arched at the point, and contains several species much resembling the crane in their general manners, we shall conclude the family *Ardeidæ* by a few observations on the genus *Ibis* ; a genus which leads off

to our next family, and departs in several respects from the more typical forms of the present. The bill we find to be long, slender, arched, somewhat stout and square at the base, furrowed through its whole length, blunt, and rounded at the tip; nostrils placed near the base, in the beginning of the furrow; face, and often the neck, destitute of feathers; the tarsi of moderate length; the toes before, joined as far as the first joint by membrane; wings moderate.

The birds of this genus are very extensively distributed, various species occurring in every quarter of the globe. They habitually frequent the borders of lakes and rivers, and abound most in countries subject to periodical inundations. Worms, insects, reptiles, and even vegetable matters, constitute their food. They dwell together in large flocks, and in most countries are periodically migratory.

Europe presents us with but one species, the GLOSSY IBIS, (*Ibis Falcinellus*, TEMM.) which in large flocks annually visits the borders of the Danube, Poland, and Hungary, and occasionally other parts still more to the west, as Switzerland, Holland, and even England. It breeds in Asia; but nothing is known of its nest or eggs. Its general plumage above is glossy black, with bronze and purple reflexions; below, bright chestnut.

The tropical regions of America, the native country of the most brilliant and gorgeous of the feathered tribes, presents us with an Ibis which stands unrivalled in the richness of its hues; it is the SCARLET IBIS, (*Ibis rubra*.) This beautiful bird is found in the southern parts of Carolina, in East Florida, and several of the West India islands, Guiana, and the adjacent countries. It frequents the borders of the sea, creeks, and the mouths of rivers, feeding on small fish, marine insects, sea-worms, young crabs, &c. It is said to perch often on trees, but to breed on the ground. Little, however, is known of its manners in a state of nature, except that it associates in flocks, the old and young forming separate companies.

When in full maturity, the whole plumage is a deep glowing scarlet, except the tips of the four outer quill-feathers, which are glossy blue-black. This colour it gains, however, only gradually; and in captivity, in our climate, (for it is not unfrequently brought to England alive,) it never gains more than a dull rosy tint. The young, when newly hatched, are covered with black down, but soon become gray; before they can fly, however, they have changed this colour for white: the first moult gives a roseate tinge on the breast and wings, which increases at the next moult; but it is not until the third or fourth year that the plumage has attained its perfection. Length twenty-four inches, of which the beak measures six.

If the scarlet Ibis be the most beautiful, the SACRED IBIS (*Ibis religiosa*) is the most celebrated of the genus.



THE SACRED IBIS.

A native of the banks of the Nile, and spread also along the coasts of southern Africa; it occurs also in India, visiting, in flocks, the Dukhun during the winter. It is but within the last few years, however, that this bird, so celebrated among the ancients, and held in such reverence

by the Egyptians, has become identified ; naturalists having long mistaken others, entirely different, for that which was once so well known as the most sacred of all sacred animals. The Ibis was a bird to which the ancient Egyptians rendered religious homage ; it was reared with solicitude in their temples, “wandered unmolested through their towns,” and its “murderer, although he had involuntarily become so, was punished with death.” The most exalted virtues were attributed to it, and after its death it was embalmed with all the honours and respect which children were accustomed to pay to a deceased parent ; nay, it was said to be the guardian of the sacred land, and the gods would have assumed its figure had they dwelt on earth, Mercury having indeed taken it upon himself when he came to instruct mankind. Many other stories, equally absurd, were told and credited by that astonishing people, who are a marked illustration of the pitch to which extensive attainments in the arts may be carried, while the greatest ignorance may prevail as to the knowledge of the true and living God.

Although well preserved mummies of this bird are to be met with in abundance, they appear, if not to have escaped the observation of naturalists, at all events to have been examined without much penetration ; and even Blumenbach, the celebrated physiologist of Germany, who examined the bones of the true Ibis in a mummy at London, considered them as belonging to the *Tantalus Ibis*, a bird as large as a stork, and with a similar kind of beak ; thus falling into the universal error. The individual to whom the merit of breaking through this popular error is due, is the traveller Bruce, who used his own eyes, and exercised his own judgment. He at once recognised the true Ibis as one which at the present day abounds on the banks of the Nile, and is known there by the name of Abou-Hannes, or Father John. This bird, he tells us, appeared to him the same “as that which the mummy-pitchers contained ;” while the *Tantalus Ibis* of Linnæus, or white Ibis of Buffon, was there unknown, or extremely rare, so that he never even saw it. The various sculptured figures of the Sacred Ibis, which are still pre-

served upon the relics of antiquity, Egyptian, Greek, and Roman, are sufficient to confirm his opinion, independent of the actual relics of the bird in question. At a subsequent period, the illustrious Cuvier, suspecting the accuracy of the prevailing theories entertained by the scientific, instituted a series of investigations which led to a similar conclusion. Speaking of two Ibis mummies, taken from the pits of Saccara, he says, “On carefully exposing them, we perceived that the bones of the embalmed bird were much smaller than those of the *Tantalus Ibis* of naturalists; that they did not much exceed those of the curlew in size; that its beak resembled that of the latter, being only a little shorter in proportion to its thickness, and not at all that of the *Tantalus*; and, lastly, that its plumage was white, with the quills marked with black, as the ancients have described it.” “We found, after some inquiries, that the mummies of the Ibis which had been opened before by different naturalists, were similar to ours.” Buffon, who examined several, and even noticed the character of the different parts, was blindly led away by the popular opinion. And yet the paintings of Egyptian ceremonies, at Herculaneum, in which several of the Ibis are drawn walking in the courts of temples; the mosaic of Palestine, which presents these birds perched upon buildings; various medals and bronze figures, all of which are accurate representations, were known; so that, as is too often the case in matters of the highest moment as well as in those relating to science or art, the eyes and the understanding seem to have been wilfully blinded. One cause of this universal error, however, arose from the supposition, that a bird described as a destroyer of serpents, and which, according to the information received by Herodotus, once saved Egypt from the invasion of a host of “winged serpents,” must be a bird of considerable size, and armed with a large and powerful beak, and which must therefore be sought for among such as possessed these characters; “for how could a bird with a weak bill, a curlew, devour these dangerous reptiles?” That the *Ibis religiosa* ate nothing but serpents, is not pretended; but that it did eat them, is also proved; and it is

well observed by Cuvier, “that positive proofs, such as descriptions, figures, and mummies, ought to preponderate always over accounts of habits, too often imagined, without any other motive than to justify the different worships rendered to animals. It might,” says he, “be added, the serpents from which the Ibis delivered Egypt, are represented to us as very venomous, but not as very large. I have even obtained direct proof, that the birds preserved as mummies, and which have had a beak precisely similar to that of our bird, were true serpent-eaters; for I found in one of their mummies the still undigested remains of the skin and scales of serpents, which I have deposited in our anatomical galleries.” The identity of the Sacred Ibis being thus established, it remains for us to give our readers some description of it.

The Sacred Ibis, (*Ibis religiosa*, Cuvier,) the Abou-Hannes of Bruce, is about the size of a common fowl. In youth the neck is partially covered with down or small feathers of a blackish tint, which fall off when the plumage is mature; leaving the head and neck bare, which, with the beak and feet, are of a decided black colour. The general plumage is a clear and spotless white, with the exception of the tips of the quill-feathers, which are glossy black, with violet reflection; as are also the last four secondaries, which have the barbs singularly elongated, and silky, so as to form a graceful plume hanging down over the wings and tail, and presenting an effective contrast to the purity of the rest of the plumage.

Its food is the same as that of its congeners, namely, reptiles, insects, worms, &c. which it searches for in the mud and slimy banks of rivers and marshes, in fields and desert places.

A specimen of this interesting bird may be seen in the museum of the Zoological Society; and a mummy, in a fine state of preservation, partially freed from the linen bandages, in order that the principal parts may be displayed, is in the museum of the Royal College of Surgeons.

With the genus Ibis our sketch of the family *Ardeidæ*

may be closed. It leads us at once to the next family, to several of the members of which it is intimately allied. Cuvier, indeed, placed it with them, separating it from the herons and storks, upon the ground of its affinity to the Curlews, (*Numenius*;) and we must confess that it appears questionable on which side of the boundary line it should be placed, nor does it much matter, since its alliances as an intervening link are displayed in either arrangement.

The family upon which we now enter is that termed *Scolopacidæ*, it comprehends the Curlews, the Snipes, the Avocets, the Sandpipers, and many more.

FAMILY SCOLOPACIDÆ.—The members of this group are the inhabitants of marshes, and the shores of lakes, rivers, or the sea. Their food consists entirely of animal matter, such as worms, insects, mollusca, small fishes, &c. “Most of the genera (as Selby observes) procure food by thrusting the bill into the soft earth, or the mud of shores, and thence extracting their prey; and to facilitate this, an extraordinary developement of nerve is distributed over and to the extreme point of the bill, thus endowing them with an exquisite sense of feeling; and in many species this member is further provided with a peculiar muscle, which, by the closing of the upper part of the mandibles, operates so as to expand them at the point, and enables the bird, with the bill still buried in the ground, to seize its prey the moment it is aware of being in contact with it.” This peculiar mode of searching for their prey has obtained for many species at least (the snipe, woodcock, &c.) the title of “*Birds of suction*.”

All the species possess great powers of wing, and are more or less migratory in their habits. Their distribution is very general; no part of the world being without some one species; and many species are common to every quarter of the globe.

Their nidification is on the ground, the eggs being four in number, and of a peculiar form, with one end large and obtuse, the other small and pointed. In the

nest they are always placed with the large ends outwards, the pointed ends meeting close together in the centre, so as to occupy the smallest possible quantity of space. Most of this family are esteemed as food, and some are accounted a luxury.

The Curlews (*Numenius*) form the first genus. They are characterized by a long, slender, incurved bill; slightly compressed, and furrowed for three-fourths of its length, with a blunt tip. Tarsi slender, and naked above the joint; wings ample.

These birds, it has already been observed, are closely allied to the genus *Ibis* of the preceding family. In their habits they are migratory; and during the winter season collect in flocks, and resort to low muddy shores and creeks of the sea, where they search for their food among the oozy slime, on the ebbing of the tide. They breed in the northern latitudes, and as spring comes begin their polar migration, at the same time leaving the shore and retiring inland to moors, wild morasses, mountain heaths, and barren tracts of country; they now separate into pairs, and commence the labours of incubation.

Two species are known in Europe, the Curlew (*Numenius arquatus*) and the Whimbrel, (*Numenius phæopus*, Lath.) the latter differing from the Curlew in being considerably smaller.

The CURLEW is found in most countries of Europe, and is common in the British isles, breeding in the northern mountain districts, in summer, and returning to the coast in flocks on the approach of winter. During the pairing and breeding season, the notes of the Curlew consist of loud whistling calls, wild and varied, uttered while wheeling over the outspread moorland, or circling round their nest. In the protection of their young they are bold and fearless, sweeping close round the intruder's head, and endeavouring, by various artifices, to lead him away from the place, and uttering all the time their plaintive cry, *courlis, courlis*, in rapid succession. When first hatched, the young are covered with thick down,

varied with brown on a yellow ground, the feathers shortly begin to develope themselves, but it is not until the sixth or seventh week that the young are able to fly, though they run about and follow the guidance of their parents as soon as hatched. Selby, noticing the habits of these birds during their winter sojourning on the coast, observes: "At this season they are remarkable for their shy and watchful character, and, unless by stratagem, can rarely be approached within gunshot. During the flowing of the tide they retire to the fields adjoining the coast, where they remain quietly until the ebb has commenced. No sooner has this taken place, than they are seen returning, to seek in the lately covered sands for a new deposit of food; and I have often observed with admiration by what wonderful instinctive feeling they became immediately acquainted with the fact; and have watched, when a certain mark on the shore has become visible, for their reappearance, without once being disappointed in the result, so well do they know their 'appointed times and seasons.'" The Curlew is found in India; but in America its place is supplied by a species distinguished by the excessive length of the bill.

To the Curlews succeed the Sandpipers, (*Totanus*,) in which we find the bill moderate, straight, and drawn out to a hard rounded tip; the tarsi long and slender; the toes three before and one behind, short, and barely touching the ground. The moult is double, a change of plumage taking place before the breeding season, but not producing that marked difference of colour which occurs in other genera. The Sandpipers migrate in flocks, and frequent the borders of lakes and rivers, and the adjoining fields; most live in inland districts, and seldom or never visit the sea; others, however, resort to the shore during their winter migrations. They do not probe the mud for their food, but search for insects, worms, and mollusca among the gravel and pebbles which strew the margins of sheets of water. Except while on their periodical journeys, they live in pairs. The species are very numerous. We may enumerate the Dusky Sandpiper,

(*T. fuscus*,) the Redshank, (*T. calidris*,) the Green-shank, (*T. Glottis*,) the Wood Sandpiper, (*T. Glareola*,) the Common Sandpiper, (*T. hypoleucos*,) and many more.

The COMMON SANDPIPER is an elegant, active, lively little bird, which annually visits our rivers and lakes, appearing in April, and retiring in September to the warmer parts of the continent. Hence it is often termed the *Summer Snipe*. It breeds near the water, the nest being placed under a tuft of grass or rushes, and, like the lapwing, it uses a thousand artifices for the protection of its young. Its flight is rapid and graceful, and it runs along the ground with great smartness and agility. Its length is seven inches. The upper surface is of a glossy olive brown colour, with fine zigzag bars of a deeper tint; the under parts white.

Leaving the Sandpipers, the genus *Recurvirostra* requires attention; it is distinguished by a singularity in the form of the beak, which is not a little remarkable, and which of course modifies the habits of the species. This genus contains the Avocets, of which four species are all as yet known. The following are its chief characters: bill long, slender, flattened, thin, and bending upwards towards the tip, which is brought to a fine elastic point. Legs long and slender. Toes three before and one behind, those before being united for nearly their whole length by a scalloped membrane. Wings long and pointed.

The COMMON or SCOOPING AVOCET (*Recurvirostra Avocetta*) is widely spread over Europe, the adjacent parts of Asia and Africa. It is found in Siberia, is abundant on the shores of the Caspian Sea, and among the salt lakes of Tartary, and is met with in Egypt and at the Cape of Good Hope. In Europe it is very common throughout Holland, and about the mouths of most of the large rivers of other countries; and in England it breeds in the marshes of Kent, Norfolk, and the south eastern line of coast generally.

The slenderness and recurved form of the beak of the Avocet renders it an instrument by no means fitted for plunging into the mud, nor is its fine elastic point fashioned



THE AVOCET.

as a feeler, like that of many of the *Scolopacidæ* ; nor is it, on the other hand, adapted for picking up food among stones and gravel ; it is, however, beautifully modified for the purposes to which it is applied, that is, for scooping from the surface of the soft oozy mud the minute insects and crustacea on which the bird feeds ; in doing this the bird appears as if it were beating the mud with the beak, and it may be frequently observed thus engaged, wading up to its breast in pools or shallows left by the retiring tide. Though it does not swim voluntarily, the Avocet, when necessity obliges, neither wants the power of swimming nor of diving ; as Wilson states in his account of the American species, which very nearly resembles our own. In its flight this bird is rapid and vigorous, from the expanse and figure of its wings.

During the summer the Avocet is scattered in pairs among the fens and saline marshes, where they select a

dry spot, in which to breed. The nest consists merely of a hollow in the sandy ground, sheltered by such plants and herbage as the spot affords; the eggs are two in number, and of a greenish white spotted with black. On the approach of winter these birds collect into small flocks, and resort to low muddy shores, near the mouths of rivers, sheltered creeks, and tracts of morass, covered and left by each flow and ebb of the sea, where they never fail to obtain a plentiful supply of food. The ocean is the storehouse of these and many others of the tribes of air; to them it is ever bountiful, it recedes and leaves a feast, and returns laden with a fresh supply, leaving it, as before, for the busy curlews, and Avocets, and tringæ, which add, by their presence, interest to the flattest coast.

Wisely is it ordered by the God of providence, that, when the inland morasses are frozen up, and all supplies denied there, the unfrozen shores of our seas, our bays and creeks shall become their magazine of food. So is it with man: seldom is one door shut, but another is opened; here he is disappointed, there an unexpected mercy surprises him; and though all around be desolate and cheerless, still each day as it comes and goes, like the tide of ocean, brings successive mercies, and successive hopes, till the frosts of winter pass, till the season of trial is over, and, to the believer in Christ, the genial hours of spring lead on to all the glories of everlasting day.

The general plumage of the Avocet is white, with the exception of the head and back of the neck, the wing-coverts and greater quill-feathers which are black; the bill is black; the legs bluish gray. Length seventeen inches and a half.

The other species are the American, or Isabella, Avocet, (*R. Americana*,) the Rufous-necked Avocet, of Australia, (*R. rubricollis*,) and the Indian Avocet, (*R. orientalis*,) which is almost wholly white.

The Godwits (*Limosa*) approach the true snipes in habits and general structure, and indeed were formerly associated with them. Two species, the BLACK-TAILED

GODWIT, (*Limosa melanura*,) and the RED GODWIT, (*Limosa rufa*,) are natives of the British isles, and the morasses and low coasts of middle and northern Europe, and of Holland especially. Their beak is furnished with nerves, and is soft and pulpy at the tip; it is a true feeler, and formed for insertion into the mud, in pursuit of insects, worms, and larvæ. Passing by the Godwits, the genus *Scolopax* succeeds, which embraces the Woodcock, the Snipe, the Great Snipe, the Jack Snipe, and a recently discovered species, Sabine's Snipe, all European, besides several foreign species.

The genus *Scolopax* is characterized as follows: beak long, straight, compressed, and slender, but swollen and pulpy at the tip; the mandibles furrowed through half their length; nostrils lateral, basal, and longitudinal; tarsi moderate; wings pointed.

The Snipes differ materially from the Woodcocks in their habits and places of abode. The former frequent morasses, bogs, and the borders of pools, fens and marshes; the latter, woods and large plantations, coppices, and grounds of extensive underwood, which afford shelter and protection. Both, however, feed in the same manner, that is, by plunging the beak into the mud, and feeling for worms and insects, which are secured before the beak is withdrawn. The Woodcock is a nocturnal feeder, as its large full eyes sufficiently testify; by day it lies concealed in close thickets, and among the underwood; at night it repairs to the open glades and meadows, streams, ditches, and drains, in search of food. Both the Woodcocks and Snipes are subject to a double moult; the plumage of summer, however, differs only by being brighter and more distinct in its markings. They live solitary, or at most in pairs; and are regularly migratory, their journeys being performed during night.

The WOODCOCK (*Scolopax rusticola*) is a native of the northern provinces of continental Europe, but instances are known of its remaining in England to breed, thus passing the summer with us. It is however, strictly speaking, a winter visitor to our shores. "The first

autumnal flight of the Woodcock," says Selby, "on its retreat from the northern countries of Europe, where it breeds and passes the summer, generally takes place towards the end of September, or the beginning of October; but as this consists of birds, whose flight is directed to more southern latitudes than our islands, a few stragglers only remain; as the flight, after resting for a day or two, proceeds on its course to Portugal, and so onwards to the farthest limit of its equatorial movement. The direction taken by such a great and successive column of these birds under migration from the north to the southern parts of Europe and northern Africa, being in a great measure intersected by the south-western coasts of England and Ireland, accounts for the abundance of them in Devonshire and Cornwall, and the countries thus situated, and the still greater numbers found in the southern and western districts of Ireland, compared with the other parts of the kingdom.

"It is thus, also, that Woodcocks are generally first observed in these positions, and sometimes long before they are seen in England or Scotland. The succeeding flights, which continue at intervals during October and the two following months, becoming each more limited in extent, the whole country gradually receives its accession of winter visitants, those that take up their haunt in the northern counties of England and Scotland seldom arriving before the middle of November, or the beginning of December; the earlier flights, when they do alight in the country, merely remaining for a day, and then passing on to the southward. From this latter circumstance, the search for woodcocks in Northumberland, in the beginning of the season, is very uncertain, and to ensure success, attention must be paid to the state of the weather, and the direction of the wind. We have found that they always come over in the greatest bodies in hazy weather, with little wind, and that blowing from the north-east; and it is probable that they then find the upper region of the atmosphere (in which they fly) freer from counter currents of air, than in more open weather."

The Woodcock is too well known to need minute description, and all are acquainted with its delicacy as food.

Hence the gun, springes, and various other means, are resorted to for its destruction.

The **SNIFE** (*Scolopax Gallinago*) is also to be considered as a winter visitant, though numbers remain constantly in our islands, merely changing their abodes according to the state of the weather, or the scarcity or abundance of food in particular localities. These breed with us, the nest being placed in a tuft of rushes, or heath, in the midst of the moorland, or marsh. About the beginning of April, the Snipe calls to his mate, uttering a piping or clicking note while soaring high on the wing, accompanied by a humming noise at intervals, produced most probably by a peculiar vibratory motion of the quill-feathers, as the bird then descends with great velocity, and a tremulous motion of the wings may be easily perceived. The numbers which remain with us throughout the year are, however, much increased by autumnal accessions from Norway, and other northern parts of Europe; like the woodcock they are in high esteem as articles of food, and are considered as the test of a good shot by sportsmen, from the quick zigzag manner of their flight when put up from the ground; this irregular course, after being continued for sixty or one hundred yards, is usually changed for a steady upward flight to a great elevation; the bird then continues its onward course, till desirous of alighting in some haunt or place of refuge, to which it descends almost perpendicularly, and with the rapidity of an arrow. In many parts of Ireland the Snipe is exceedingly abundant.

From the genus *Scolopax* are separated the Painted Snipes of Africa and India, which form the genus *Rhynchæa*, and which are characterized by the beak being slightly arched at the tip. Their manners and habits are those of the Snipes.

Passing from these, the genus *Tringa* presents itself.

The *Tringæ* are a numerous tribe, which inhabit fens and marshes, the borders of lakes, the mouths of rivers,

saline morasses, creeks, and the shores of the sea. They search for food in the mud, soft sand, or among the weeds that border the water's edge; and subsist on insects, larvæ, worms, mollusca, &c. They perform their periodical journeys in large flocks, and do not separate in order to breed, but still keep together in bands; their moult is double; and the winter plumage differs so much from the livery of spring, that the same species has, in many instances, been described under two or three specific names, from an ignorance of the extent to which this law of change is carried. In many species, the young also differ from the parent birds, either in their winter or summer state of plumage. The difference between the spring and winter dress is by no means always the most contrasted in the males, on the contrary, the females are often the richest in their colouring; the principal variations of colour are from white to brown, and from gray to black. In a great proportion, the females are to be distinguished from the males solely by their superior size, a circumstance which is rather remarkable, and contrary to the general rule.

The generic characters consist in the bill being moderate, or rather elongated, compressed at the base; blunt, smooth, and dilated at the tip, and having both mandibles furrowed; legs moderate, slender, naked above the tarsal joint, with three toes before and one behind; wings moderate and pointed.

One of the most remarkable examples of this genus is the RUFF, (*Tringa pugnax*.) The Ruff is the name of the male bird, given from the ornamental plumes which grace its summer livery; the female is termed the Reeve. This remarkable bird is common in Europe, but is nowhere so abundant as in Holland. It is among our summer visitants, but is very limited as to the localities it frequents, the fens of Lincolnshire and Cambridge being its chief resort. In spring, the male bird, which during winter was clothed in a plain dress, without any ornament, assumes a ruff or frill, consisting of elongated feathers, arising from the neck and throat, while two tufts spring from each side of the head, behind the eyes.

What is most remarkable is, that in no two individuals is the colour of this ruff alike, nor in the same bird for two successive years. It may be seen jet black; rufous brown; yellow, elegantly barred with black; white,



THE RUFF.

barred with black; mingled white, black, and brown, &c. &c. In addition to this ruff, the face is covered with small fleshy excrescences, which with the ruff and ear tufts, disappear after the season of breeding is over. The female is quite plain, and (as an exception to the *Tringæ* in general) a third less than her mate. The pugnacious habits of the Ruff are well known; and, like the turkey, one male leads several females in his train, and has his own territory, which he defends against all intruders. Soon after their arrival in this country they assemble upon some dry hillock or elevated spot in the midst of the marshes, and each individual selects his temporary kingdom, where he reigns supreme; any invasion is sure to be succeeded by a battle; and so numerous are these contests, that the grass soon becomes bare by the constant traversing of the combatants. “In fighting, the actions of the Ruff are not unlike those of the

common cock ;” the head being lowered, and the ruff thrown forward while they attempt to seize each other’s bills, and then strike with the wings. The place which the female, or Reeve, chooses for her nest is among the rank grasses, or rushes, of the swamp ; it consists of a slight depression in the earth, lined with a few coarse fibres ; the eggs are four in number of a light greenish colour, blotched with brown or olive. In September, after the breeding season is over, the birds, old and young, congregate in flocks, and prepare for their journey southwards. At this season, as well as in spring, on their first arrival, multitudes are captured in nets, springes, &c. and fattened in confinement for the table, their flesh being highly esteemed. In captivity they betray no alarm, but feed greedily as soon as taken, their artificial diet being bread and milk, boiled wheat, and other farinaceous matter, upon which they soon become fat.

The general colour of the plumage is brown, varied with black and reddish ; the chest being reddish brown, with dashes of brown ; the throat and under parts white. The plumage of the female is more inclined to dull gray, with dashes of black. The ornamented ruff belongs only to the male in summer. Length of male eleven inches and a half, of female nine inches.

The other species of this genus are very numerous, but agree closely in general habits and manners. We may mention the Knot, (*Tringa Canutus*,) a winter visitor to our low shores, arriving from the polar regions early in autumn ; the Little Stint, (*Tringa minuta*,) a continental species, visiting Holland, Germany, and France, during its autumnal migrations, which extend far south ; the Purple Sandpiper, (*Tringa maritima*,) a winter visitant to the bold rocky beaches of Northumberland, the Fern Islands, and similar places ; and the Dunlin, (*Tringa variabilis*,) indigenous in the northern portion of our island, and spread, during winter, (its numbers increased by accessions from the higher continental regions,) over every part of our coast where the shore consists of mud or sand. It breeds among the shingles at

the mouths of rivers, and also in the midst of saline marshes and boggy ground.

One genus of the present family yet remains for our consideration ; it is that of the PHALAROPES, (*Phalaropus*,) which is characterized by a beak long, slender, feeble, depressed at the base, and furrowed, the tip being blunt and dilated ; tarsi moderate ; toes three before, one behind, those before being joined at the base by a membrane, and bordered along their sides to the claw, with large scalloped membranes. The genus has been subdivided by Cuvier, but upon slender grounds.

The Phalaropes are elegant little birds, possessing the power of swimming with the utmost facility. Tiny voyagers, they float at ease, and with admirable grace, over the rough waves of the sea, as well as on the smoother surface of inland lakes and pools. They prefer inlets of the sea, and saline waters, and breed on the banks adjacent, among rushes and herbage. Their food consists of marine insects and worms that live in the water, and move near the surface ; these they seize when within reach, but do not dive for their booty. Their plumage is soft and close, but differs little either in summer or winter. Their flight is rapid and vigorous. In the chain of affinities they seem to occupy a place between the Tringæ on the one hand, and the coots (*Fam. Rallidæ*) on the other ; their general form allying them to the one ; their aquatic habits and fringed toes to the latter.

Two species are European. The RED PHALAROPE (*Phalaropus hyperboreus*) is a native of the marshes and shores of the arctic regions, both of Europe and Asia ; it is also common in Scotland, the Orkneys, and Hebrides, and is sometimes seen still farther south. In length it is about six inches and a half.

The GRAY PHALAROPE (*Phalaropus lobatus*, LATH. or *P. platyrhynchus*, TEM.) inhabits the eastern parts of northern Europe ; it is abundant in Siberia, over all the

lakes and rivers ; it visits the lakes of Asia and the Caspian Sea ; and is common in the arctic regions of America. Accidentally it visits the British isles. Its length is eight inches and a half.

Last of the Order Grallatores is the FAMILY RAL-LIDÆ.—This group embraces the Rails, the Coots, the Jacanas, &c. ; and is distinguished from the preceding family by several important modifications of form. The bill is shorter, pointed, and often strong ; the tarsi are shorter, and the hind toe much more developed. The general contour of the body is narrow or compressed, and well adapted for the habits of the various species. Inhabitants of the sedgy borders of the marshes, where beds of close-set stems spread around on every side, they have to thread their way where it is difficult to conceive how they can manage to proceed. Favoured, however, by their form, they disentangle the labyrinth, and scud along under cover of reeds and grasses, and easily elude pursuit. Most are decidedly aquatic, swimming and diving with the utmost facility. Their feet vary considerably ; in some the toes are long, and their span rendered still more extensive by long straight claws,—these are birds traversing the weed-covered surface of stagnant or slowly moving waters,—in others the toes are bordered with narrow membranes, or with large scalloped webs ; these are birds (as the Coot) which are decidedly aquatic, and constitute the links which go to connect the *Grallatores* with the great order of water birds.

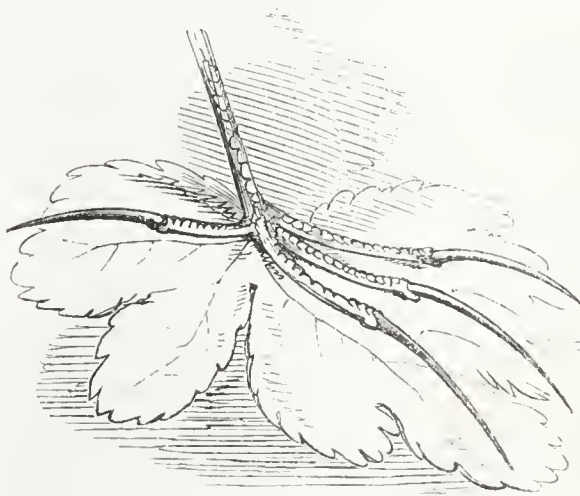
The first genus which we shall notice is that termed *Parra*, (Lin.) The beak is rather slender and pointed, and resembles that of the plovers ; the toes, which are three before and one behind, are very long, and furnished with long sharp-pointed nails, especially on the hinder toe, so as to increase the extent of surface covered. The birds of this genus are called Jacanas ; they are peculiar to the hotter climates of America, Asia, and also Africa, and closely resemble the moor-hen in their general habits.

With singular grace and ease they trip over the weeds which mantle the waters, in search of their food, which consists of various aquatic insects. The most beautiful of



THE CHINESE JACANA.

these birds is the CHINESE JACANA (*Parra Sinesis*.) This elegant species inhabits the whole of India; it is



FOOT OF JACANA.

found among the Himalayan mountains, wherever lakes and morasses afford it an asylum; and it is numerous.

with two allied species, on the Ganges, between Calcutta and Benares. It is often seen well depicted in Chinese drawings. Its general contour is light, slender, and graceful; and its long, bending, pheasant-like tail adds no little to its appearance. It walks with an easy gliding pace over the lotus leaves which lie level on the surface of the water, and, like the moor-hen, is most probably also capable of swimming, its long tail being then elevated. In powers of flight it appears to be deficient, the wings being short and the quill-feathers terminated with slender appendages, little narrow plumes proceeding from the tip of the shaft. The length of the Chinese Jacana is twenty-two inches. The head, fore part of the neck, and chest are white; the back of the neck is of a bright orange yellow, divided from the white by a narrow black line; shoulders, white. The rest of the plumage, deep chocolate brown; beak and legs, dull olive green.

The next genus in illustration of this family, which we shall notice, is that of the Rails, (*Rallus*.) The beak is somewhat long, slender, compressed, and slightly incurved. The nostrils are situated in a membrane at the base of the beak. The wings are short; the tarsi moderate; the toes long, slender, and cleft to their base.

The Rails are remarkable for the lateral compression of the body, and the rapidity with which they can pierce through the thickest growth of reeds or tangled grasses, a provision which compensates for their awkward and constrained mode of flight. They swim with ease, and feed on worms, insects, shelly mollusca, vegetables, and seeds. The best example is our well-known WATER RAIL, (*Rallus aquaticus*,) a bird common throughout Europe, in the northern continental parts of which it is certainly migratory, if not in more temperate latitudes. The haunts of the Water Rail are “marshes, pools, and water-courses, particularly such as are covered with dense aquatic herbage and reeds, in which it finds shelter and refuge; being enabled, by the narrow form of its head and body, to pass through the closest beds of these plants with great rapidity.” Without taking wing, which it does only when

forced, and that in an embarrassed manner, it easily eludes the pursuit of a dog, winding about among the close cover of reeds till it gains its retreat, which is often the deserted hole of a water rat, or a recess among the intertwined roots of some old tree. If pushed hard while swimming, it will dive with great address, and rising at a distance, press forward to the reed-bed. It also often runs over the weedy surface of the water, supported by the floating leaves, a mode of progression for which its long wide-spread toes are well adapted. Though tolerably common in England, the peculiar localities it frequents, together with its shy recluse habits, prevent it from being so often seen as might be expected; those, indeed, who go out with a gun and dog, are frequently disappointed, owing to its having taken the alarm and sought its place of retreat. While moving undisturbed in search of food, it has a habit, like the water-hen, of flirting up its tail, so as to show the cream-white under-coverts. Its food consists of aquatic insects, larvæ, worms, &c. Its nest is placed among the thickest herbage, in the most inaccessible part of its haunt; Montagu informs us that it is made of coarse grasses, and that the eggs are six in number, and of a pure white. Temminck, however, says that the number is ten or twelve, and the colour yellowish white spotted with brown; the point is yet doubtful. Bill, brown at the tip, orange-red at the base; throat, pearl-gray; sides of the neck, breast, and under surface, bluish gray; flanks, grayish black, barred with white and cream-yellow; under tail-coverts, cream-white; the whole of the upper surface, yellowish brown, the centre of each feather velvet-black; legs, yellowish brown. Length, twelve inches.

From the genus *Rallus* has been separated that remarkable little bird the Land Rail or Corn Crake, together with several allied species, which now form the genus *Crex* of Bechstein and *Ortygometra* of Stephens. We retain that of Bechstein.

The genus *Crex* is distinguished from *Rallus* by a shorter, thicker, and more angular bill, and from *Gallinula* (the following genus) by the absence of the lateral

membrane along the soles of the toes, and of the naked leathery skin which occupies the forehead. In their manners the birds of this genus resemble the water rail, being shy and solitary; most are found skulking among the reeds of marshes, but others, on the contrary, are dispersed among the thick tall grass of meadows, where they run with great quickness, seldom rising on the wing, except, of course, during their periodical migrations; for the British species of this genus are all summer visitants.

The CORN CRAKE, or LAND RAIL, visits the southern and midland counties of our island about the end of April, but seldom appears in the north before the beginning of May. In some districts it abounds in incredible numbers, in others it is little known. In the rich meadow lands of Cheshire, the peculiar cry of this bird may be heard resounding on every side, during the whole or greater part of May; now close at hand, as if the bird were not a yard distant; now far off; while other voices, in different parts of the meadow, are keeping up the reiterated note, *crake, crake, crake*, from which it derives both its English and Latin name. The notes thus uttered may be closely imitated by drawing the finger or a stick along the teeth of a comb, a decoy often made use of. They are the call of the male to his mate, and are suspended as soon as the task of incubation begins.

The Corn Crake, heard as it may be on all sides around, is seldom seen, and is put up with great difficulty; for it seems to elude pursuit as if by magic, threading its way among the grass with astonishing ease, celerity, and silence. Their flesh is greatly esteemed; hence they are much sought after; but the sportsman requires a dog directly trained to the work to have any success.

The food of the Corn Crake, consists of insects, seeds, &c.; its nest is composed of dried grasses, and placed in a depression of the ground among overshadowing herbage; the eggs are ten or fourteen in number, of a yellowish white, spotted with brown. It leaves our island in October. The plumage of the upper surface is deep brown, each feather having a margin of pale yellowish brown;

throat, yellowish white; breast, pale yellowish brown, clouded with pearly gray; flanks and under tail-coverts, barred with dark and light rufous brown; the sides of the head, over the eyes, ash colour; bill, brown; legs, yellowish brown. Length, nine inches and a half. It is very scarce in the neighbourhood of London; we have only twice heard it in some fields near Acton.

Our next genus is *Gallinula*, which, with the beak of *Crex*, has a membranous plate advancing from the base of the upper mandible upon the forehead. The wings (and it is also the case in *Rallus* and *Crex*) are armed with a small sharp spine; legs of moderate length; and the toes, which are long, are bordered by a narrow membrane.

In their habits the birds of this genus are decidedly aquatic, swimming and diving with great facility. They also run swiftly, and hide in reeds, or holes in banks, or under the overhanging bushes which dip into the water. The body is compressed, but not so much so as in the Rails. Our example is the COMMON GALLINULE, MOOR-HEN, or WATER-HEN, (*Gallinula chloropus*, LATH.) This bird is dispersed over Europe generally, and is found also in many parts of Asia and Africa. It is well known in our islands, inhabiting ponds, slow-moving and deep waters, canals, &c. where the borders are covered with luxuriant herbage, osier-beds, or reeds. It swims gracefully, and dives not only to avoid danger but often to obtain food, as it has been taken by lines baited for eels. It feeds habitually upon insects, aquatic worms, the larvæ of dragon-flies, (*libellula*,) &c. When suddenly surprised on the bank, where it may be often seen at rest, it dashes into the water, where, half flying, half running over the surface, it makes for its retreat. It is very common, as we have often witnessed, for it to dive for concealment, gently rising for air, its beak only being raised above the surface for a moment, when it again descends if danger threaten; or remains, if it be sufficiently obscured, with the beak out of the water, watching intently till the danger is past. Its flight is heavy and awkward, the legs

hanging down; but it rises readily, and can keep up a long course on the wing. While walking, it has a habit of flirting up its short tail, so as to display the white under coverts very conspicuously; its actions are smart and lively, and render it an interesting appendage to ornamental sheets of water.

The Gallinule selects a retired spot in which to breed, placing the nest among the sedges by the water-side, sometimes upon a low thickly-tufted floating branch, or the stump of an old pollard; it is formed of matted flags, rushes, &c. The eggs are eight or ten, of a yellowish white marbled with various tints of brown. On leaving the nest, the female covers her eggs, "an instinctive habit," says Selby, "possessed by several others, not only of this, but of other families, and which I conceive to be done rather with a view to concealment from their enemies, than to retain during absence the warmth generated by incubation." It is, however, a very remarkable circumstance, and indicates the superintending care of Divine benevolence which implanted the instinct for their benefit, in order that they might be on a footing to meet the wiles of the marauding crow, rat, or weasel.

The young of the Gallinule when first out of the shell are covered with black hairy down, and immediately take to the water, where they are assiduously attended by their parents, who frequently brood over them in the same manner as a hen; in five weeks they are fully fledged and able to fly and provide for themselves. While young they are often seized by pikes, rats, and other predatory animals.

Base of the bill and frontal shield, red; head, throat, neck, and under parts, blackish gray; ridge of the wing and under tail-coverts, white; upper parts of the body, dark olive green; legs, dusky green; above the tarsal joint is a garter of vermilion red.

From the genus *Gallinula* are separated the Purple Gallinules, (*Porphyrio*,) characterized by having the beak very strong, thick, compressed laterally, and almost as high as long; the frontal plate very considerable; the

toes of great length, and without any membranous edging, or very trifling. Their colours and beauty have gained for them the name of “Poules Sultanes,” or Sultanas.

The birds of this genus much resemble the Gallinules in their manners: like them, they habitually frequent the borders of lakes, rivers, and sweet water; but morasses and the vast rice-grounds of the south serve also for an abiding place and retreat; and as their natural food consists more of grains than of aquatic plants and other productions, they are much less exclusively confined to the water. They glide, however, with elegance over the liquid element, and run also with quick and light steps on the ground or over the leaves of aquatic plants. Their body is not remarkably narrow nor slender, as in the Gallinules; their beak is strong and powerful, and well adapted to disengage the shelly covering of grains or to break the firmest stalks; their feet, which are used to grasp, and carry food to the beak, are furnished with long toes, and claws which fold down easily, so as to give the power of prehension. A rich blue or purple plumage prevails in the majority of the species, one of which, a native of Southern Europe, was in high esteem among the ancients, and distinguished for its beauty. The Greeks and Romans made extraordinary account of it, not as an object of luxury for their extravagant feasts, but as being worthy a place in their temples and among the shrines of their deities.

This beautiful species is the HYACINTHINE GALLINULE, (*Porphyrio hyacinthinus*, TEM.) which in Sicily may be seen in the markets and streets, numbers being kept for ornament in a state of domestication. This species has been long confounded with others, never found in Europe in a state of nature, and it is owing to M. Temminck that it is rescued from its obscurity.

The Hyacinthine Gallinule inhabits the marshy borders of rivers and large lakes; it is very abundant in rice-grounds. Multitudes abound in the morasses and inundated plains of Sicily, Calabria, the Ionian Islands, and of the Archipelago and Levant universally. It also occurs

in Dalmatia and the southern provinces of Hungary. It breeds in rice-grounds, or among the tall reeds and flags of morasses, constructing its nest of dried herbage; the eggs are three or four, of a white colour, and almost round. Its food consists of grain, aquatic plants, fruits, and fish. The cheeks, the throat, and front of the neck, are of a fine turquoise blue; the back of the neck and under parts, deep dull indigo; the breast, the back, the wings, and tail, bright indigo; the under tail-coverts, white; the frontal plate and beak, lively red; legs, light reddish. Length eighteen inches.

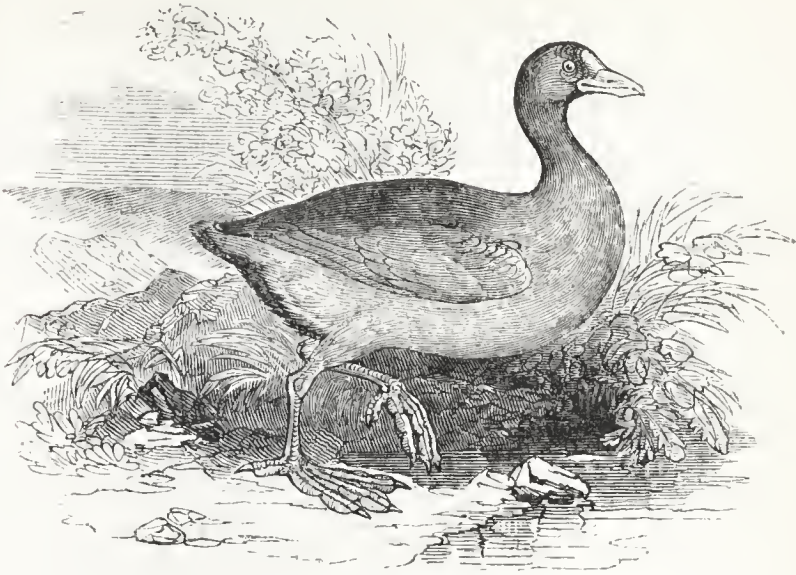
The last genus of this family requiring notice is that of the Coots, (*Fulica*.)

The genus *Fulica* is distinguished by a short, strong, straight beak, with a large frontal plate; legs of moderate length, and the toes edged with a scalloped or festooned membrane; the middle toe having three, the inner two, and the outer four distinct membranes on each side: plumage thick and soft.

The Coots are united on the one hand by the *Phalaropes* to the *Scolopacidæ*, and form on the other the link which connects the *Rallidæ* to the swimming or *Natatorial Order*. Their manners, as indicated by their external conformation, are purely aquatic. They inhabit lakes, ponds, and even inland seas, and feed on worms, aquatic insects, and vegetables. The species are few, and their plumage is dark and unvariegated. They breed among tall herbage near the water's edge.

The COMMON COOT (*Fulica atra*) is widely spread over Europe, and is particularly abundant in Holland. Its manners closely resemble those of the common gallinule, or water-hen. In the northern parts of our island, and perhaps of the continent, it appears to be partially migratory, passing, on the approach of winter, to the southern districts, and visiting salt-water inlets, where food is still attainable. Hence in the Isle of Sheppy, the neighbourhood of Southampton, &c. great numbers are

killed during the winter for the markets, its flesh being esteemed, though of a peculiar flavour.



THE COMMON COOT.

The Coot swims and dives with the utmost ease; nor is it inactive on land, where it often wanders in quest of worms, slugs, &c., which, with aquatic insects and the fry of fish, constitute its food. Its nest is a huge mass of plants, such as dead flags and rushes, situated sometimes among the reeds by the water's edge, at other times supported by reeds in a floating state, and occasionally, where the water is shallow, raised up layer by layer from the bottom till it rises from six to twelve inches above the surface. The author of "British Zoology," speaking of the nests of the Coot from repeated personal observation, observes, that they are large, and apparently clumsy at first sight, but amazingly strong and compact. . . . So firm are some of them, that whilst up to my knees in water they afforded me a seat sufficiently strong to support my weight. From the nature of the materials composing the nest conjoined to its situation, it not unfrequently happens that it is torn from its moorings by floods and carried down the stream; and instances have been known of such occurrences taking place, the female continuing to sit upon her eggs, which were uninjured.

The young are covered with harsh black down on their exclusion from the egg, and take to the water immediately, under the guidance and protection of their parents. The eggs are of a dirty greenish white, covered with specks and dashes of brown.

The general plumage of the Coot is black, excepting on the under surface, which is dusky ash-colour, and a line of white on the ridge of the wing. Bill, pale rose red; frontal plate, white; legs, dark olive green. Length eighteen inches.

Here we close this sketch of the order *Grallatores*, illustrated by the clearest and most remarkable examples. Its situation will be at once understood; intermediate between the *Rasores* and the swimming birds or *Natatores*, it is united at one point to the former, and at another insensibly merges into the latter, while the groups of which it is composed claim various degrees of affinity with each other. Into these minutiae, however, we must not attempt to enter; suffice it if the outline is clear and comprehensive.

If the order we have just sketched possesses any interest, (and who can doubt it?) it necessarily leads us to that God of order, harmony, and perfection, who has made all beings and ordained the laws of nature. A christian cannot contemplate the God of nature without remembering that He is also the God of grace, and it is his privilege so to do. The Greek or Roman sage knew God as the Author of all things, but knew no more; but we, led up to God through nature, behold Him as a Father and Friend, who has revealed himself to us not only in His works, but more fully and more clearly in His word.

The last order of birds now presents itself.

ORDER VI.

NATATORES.

THE order Natatores contains the swimming birds, birds whose habits are decidedly aquatic, and whose conformation, as it respects the structure of their feet and other anatomical points, has obtained for them the popular but expressive term of Water-fowl. Awkward on the land, the liquid element is their congenial home. The position of the limbs, placed behind the centre of gravity of the body; the short compressed tarsi; the close, thick wadding of feathers which envelopes the body, and throws off the water as if their surface were oiled; the boat-like contour; the long neck; all declare the station this order occupies in nature. Yet, as in all other orders, differences and alliances may be traced by which groups are marked out and themselves subdivided.

The first family is that termed LARIDÆ, or the Gull tribes. Besides the Gulls, it comprehends the Terns, the Scissor-bills, the Petrels, the Albatrosses, &c.; all characterized by great powers of flight. The toes are three before, united by membrane or webs; and in many one behind, without membrane; in some, however, the hind toe is either totally wanting, or consists merely of a nail or short claw. The form of the bill is various; in some it is straight; in others hooked at the tip. Most subsist upon fish and marine productions, which they either obtain from the waves out at sea, or pick up on the shore. Many species repose upon the water, where they float at ease with much buoyancy; they do not, however, make any progress in swimming, and are incapable of diving. The Petrels, however, never actually settle on the water to float, but use their webbed feet to run as it were on the surface of the waves, in which action they are assisted by their wings.

The first genus claiming notice is that of the Terns, or Sea-Swallows, (*Sterna*,) so called from their long wings and swallow-like mode of flight: hence their French name, “Hirondelle de Mer.” The genus *Sterna* is thus briefly characterized: beak as long or longer than the head, straight, compressed, and pointed, the lower mandible having an angle near its middle part; nostrils basal, and oblong; wings long, and pointed; tail forked; tarsi short; toes before, three, united by webs; hind toe small.

The Terns may be said to represent the Fissirostral group, of the order Insessores, among the groups of the present order. Destined to pass the greatest portion of their time in the air, their long wings and forked tail endow them with ample powers both of rapidity and continuance. Bays and wide inlets of the ocean, inland seas, lakes, and the larger rivers, are their chosen haunts; where they may be seen in flocks wheeling in rapid flight, and pursuing their course in search of prey. The smaller kinds of fishes constitute the food of those which frequent the sea, while those that frequent lakes and rivers, in addition to fish, feed on insects, such as dragon-flies, &c. taken while on the wing. The manner in which they capture the finny tenants of the deep is by precipitating themselves on such as swim near the surface. In doing this they descend with astonishing force and rapidity, and are often buried beneath the waves for several seconds.

The species are very numerous, and very widely distributed, being found in all climates and quarters of the world. Their moult is double; but that of spring is partial, the change of feathers taking place only on the head, which from gray or white becomes more or less generally black, and remains so during summer, returning to gray or white when the autumn moult takes place, which affects the whole of the plumage. They breed in united bands of hundreds, occupying a common spot on the sands, shingle, or rocks; and often lay their eggs so closely together, that in sitting the birds actually touch each other. The number of eggs of each species is usually three. In habits and manners one species may be taken as a sample of the whole.

The COMMON TERN (*Sterna Hirundo*) is abundant on the southern coast of England, and is spread over most of the shores of Europe. It flies in flocks, and utters a harsh note. Its breeding-place is upon the sand or shingle, above high water-mark; but no nest is made, beyond a slight cavity scraped out, for the reception of the eggs, which are olive, or greenish blotched with brown and gray. During the middle of the day, if the weather be sultry, this bird sits very little upon them, the heat of the sun being sufficient: they are, however, carefully covered at night. The young birds are at first enveloped in mottled down, and are assiduously attended by the parents, who are watchful and clamorous in their defence.

In the present species the black plumage of the top of the head is not lost in winter, but becomes duller and less intense. The sides of the head, the neck, and upper surface, are pearl gray; upper tail-coverts, white; tail, gray; the outer web of the first quill-feather is black; of the rest gray; breast, pale pearl gray; outer parts, white; bill red, with a black tip; legs, red.

The BLACK TERN (*Sterna nigra*) is an example of a species frequenting fresh water lakes and marshes, instead of the ocean. It is found in the north as far as the arctic circle; on the vast morasses of Hungary and Holland it abounds; and is a regular summer visitant to the fens of Lincolnshire and Cambridgeshire, and the pools of Romney Marsh in Kent. It breeds in flocks in the marshes among reeds and aquatic herbage, and even on the large floating leaves of the water-lily, the nest being made of dried grasses and other vegetable fibres. The eggs are pale olive, blotched with brown and black. Its food consists of dragon-flies, may-flies, and such insects as “haunt the stream and pool.” Its flight is peculiarly buoyant, and characterized by rapid and abrupt evolutions, particularly when giving chase to its prey. Montagu mentions an attack upon this bird by a peregrine falcon, whose repeated pounces it foiled, and from which it ultimately escaped by the dexterity and surprising quickness of its manœuvres. Head and neck, black; whole of the

under surface of body, deep blackish gray; upper surface and tail, deep bluish gray; under tail-coverts, white. In winter the head and neck are white; the rest of the plumage being the same as in summer.

To enumerate the species even without any comments, would take up much space, and that without producing any benefit to our readers, to whom we are not delineating the minutiae of specific distinctions, but a general outline of groups, illustrated by examples.

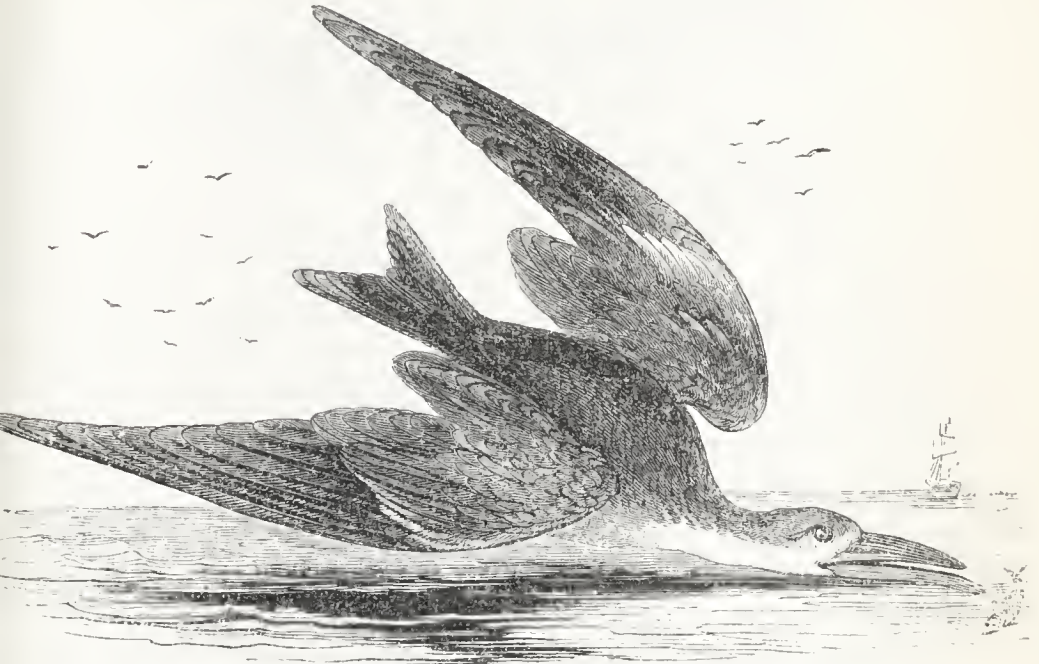
The Terns may therefore be left, and we pass to another genus, namely, *Rynchops*, closely allied by manners, length of wing, and form of tail to the preceding, but distinguished by the extraordinary form of the beak. Only one species is as yet recognised, though it is probable that a bird mentioned by Latham, may prove to be a second.

THE BLACK SKIMMER OF THE SEA, or Scissar-Bill, (*Rynchops nigra*, LIN.) The structure of the organs of animated beings, and the express adaptation of those organs, each for its peculiar use, afford an inexhaustible source of rational inquiry. Studies of this kind must ever tend to elevate and expand our conceptions of the power and wisdom of the God of nature; they lead us through an elaborate chain of cause and effect, of means and end, till we arrive at the cause of causes, the Almighty, the self-existent Jehovah. Hence is the volume of nature of no mean use to him who reads it aright, and hence, as one of our motives, do we present these extracts from its pages to our readers.

The bird here faithfully represented, is, we need hardly say, a tenant of the ocean, over whose wide expanse it perpetually skims on wings of powerful flight, in search of its finny prey. It is remarkable on account of the singular mechanism of its bill. The bill of birds affords a clue to their food and natural habits: who can mistake the purpose of the strong, hooked, dentated beak of the falcon? or of the spatulate mandibles of the spoonbill, or of the long slender bill of the snipe and curlew? In the present instance, also, we have an example of design,

at the least as clear, and, if we regard the mechanism of the organ, fully as remarkable, as is possessed by any of the feathered race.

The Skimmer is a bird of moderate size, being in

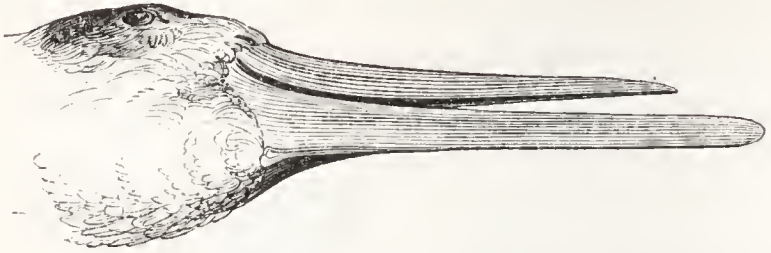


THE BLACK SKIMMER OF THE SEA.

length about twenty inches; its stretch of wing, however, is very great, giving a measurement of three feet. The mandibles of the bill are very compressed on the sides; the lower is much the longest, and bears no unapt resemblance to a knife-blade, or, rather perhaps, to a sharp and slender paper cutter. The upper is shorter, more pointed and rather stouter, having its inferior edge channelled with a groove, for the reception of the lower blade, which shuts somewhat like a razor into its handle.

The length of the lower mandible is five inches, that of the upper nearly four: both are orange red at their base, but gradually become black. What, it may be asked, can be the use of such a bill as this? We have all seen the way in which eels are speared. Two of the flat prongs of the instrument used for that purpose well represent the bill of the Skimmer, and such also is its use. The Skimmer, as its name imports, is ever traversing on

wing the surface of the ocean, with the lower mandible just dipping beneath the water, the gape of the mouth being open : on meeting with its prey, (which consists of



THE BILL OF THE SKIMMER.

the smaller kinds of fishes,) it does not at once engulf it in a wide capacious mouth, or grasp it with a strong hooked bill, but taking it across, runs it up between these bladed mandibles by the impetuosity of its career, and thus securing it swallows it at leisure. The immense power of flight with which this bird is endowed, renders it perfectly at home hundreds of miles from the shore, and though it can swim with tolerable ease, it is seldom seen except on the wing. Its range is rather extensive, as it occurs along the American coast from New York to Guiana, and even Brazil ; it is not, however, confined to the seas of the New World, being by no means uncommon in the East Indies, both on the Malabar coast and that of Coromandel. It is found along the shores of the Senegal, in Africa. It is said to associate, during the breeding season, in societies, consisting of from fifteen to twenty pairs, which fix upon some advantageous situation, (such as a bank or sand-bar uncovered by the tide, or some low islet,) for the purpose of incubation ; each pair scooping a hollow in the sand, a few yards apart ; in this are deposited three eggs of a clear white, with spots of dark and lighter ash colour.

The general colour is a dark umber brown, approaching black, over the wings and upper surface ; the head, throat, and upper parts being white ; the legs and feet, which are webbed, red. When we look at the habits of this bird, its food and its mode of taking it, and then consider its powers of flight, adapting it to traverse the

surface of the boisterous ocean, and its bill so expressly formed for spearing its victims, we cannot but acknowledge the Divine skill in the arrangement of its mechanism and instincts.

The Gulls next demand attention. Birds of the ocean, from whose stores they derive their sustenance, the Gulls are natives of every shore from north to south, but are most abundant in cold or temperate latitudes. Clothed with a mass of close feathers, they appear larger than they are in reality, as seen when on ample slowly flapping pinions, they sail along in a circling course, intent on the waves beneath. Rapid though their flight undoubtedly is, their powers are rather calculated for endurance, and the ease with which they make their way. Opposing the head in a direct line to the wind, they ride out the severest tempest, and the higher and rougher the waves the more abundantly is their prey brought within their reach. They are incapable of diving, but skim their food from the surface, or pick it up along the muddy shores after the ebbing of the tide: it consists of fishes, alive or dead, mollusca, and even the carcasses of drowned animals. They breed in large flocks, some on the sands of small islands; others among the marshes of the shore; others on the rocks overhanging the ocean. Their moult is double, but only partial in spring, and the reverse takes place to that which we noticed in the terns; the head and neck being white, but becoming streaked and varied with gray, or dull black, or altogether black during winter.

The Gulls are divided into two sections or genera, the first of which comprehends the True Gulls, (*Larus*,) the other the Parasitic Gulls, (*Lestris*.)

The genus *Larus* is thus characterized:—Beak moderate, strong, hard, compressed, and bent at the tip; the lower mandible having a projecting angle, whence it ascends to the point; nostrils placed in the middle of the bill, oblong and narrow; wings long; tail even; the three toes before entirely webbed, hind toe small.

Many species are common on our shores, and none of

our readers can have visited the sea without having observed them flapping slowly along ; now against the wind, now driving swiftly before it, and now skimming the curling waves. Of these birds we may enumerate, as most abundant, the Black-headed Gull, (*Larus ridibundus*,) the Herring Gull, (*Larus argentatus*,) and the Common Gull, (*Larus canus*.) Of the rarer species we may notice the Kittiwake, (*Larus rissa*,) the Ivory Gull, (*Larus eburneus*,) and the Great Black-backed Gull, (*Larus marinus*.)

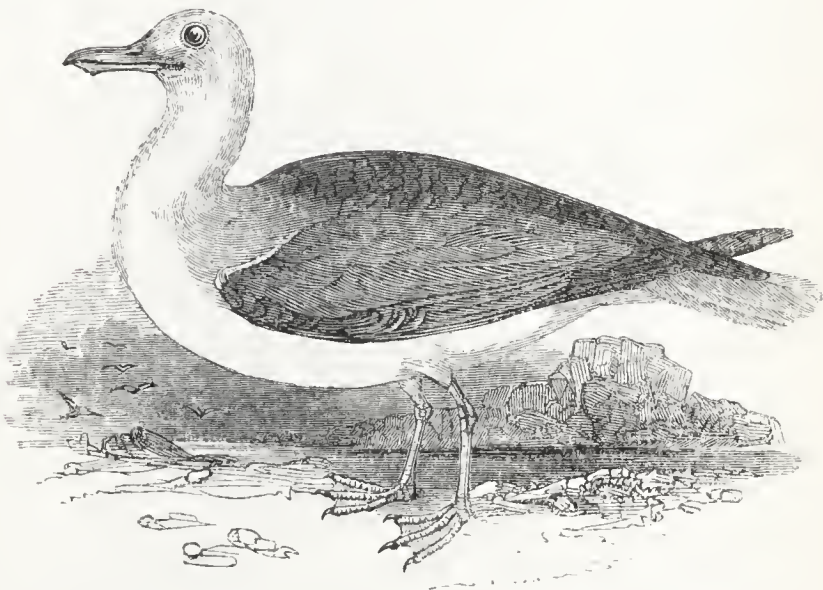
The KITTIWAKE (*Larus rissa*) “is a bird of very wide distribution, extending over a great part of Europe, up to very high latitudes ; over the northern regions of Asia, a great portion of the north American continent, where,” Richardson says, “it abounds on the lakes, in the interior of the fir countries, and on the coasts of the Pacific, as well as the shores of the Arctic seas, to which latter it annually retires to breed.” On the southern coast of England it is seldom or never seen, but visits the coast of Scotland and the northern counties every spring, appearing about the end of April, and retiring as soon as the breeding season is over. Multitudes breed upon the Bass Rock, in the Frith of Forth ; at Flamborough Head, Yorkshire ; and at the Fern Islands, on the Northumbrian coast ; and on the summits of basaltic cliffs, where there is often scarcely a hand’s breadth of room they build their nests, and rear their young, in company with guillemots, razor-bills, and other winged pensioners of ocean. During incubation, the females will not leave the nest, even upon being closely approached, but the male birds will circle round the intruder, uttering their peculiar cry ; whence from its sound they have obtained their English name.

The shortness of the tarsi of the Kittiwake renders it more embarrassed on land than its congeners ; hence it procures its food almost exclusively from the liquid element, over which it is perpetually sporting. The hind toe is very small, and destitute of a claw ; the head, neck, and under plumage, together with the tail, are pure

white; back and wing-coverts fine pearl gray, the two first quill-feathers have nearly the whole of the outer web and the end black, the rest of the greater quill-feathers are-tipped with black; bill dull lemon yellow; legs greenish black. In winter the head and sides of the neck are of a bluish ash colour. The young birds, before the autumnal moult, have a spot in front of the eyes; the ear-coverts, and a crescent-shaped mark on the back of the head, deep blackish gray; the scapular feathers black, and the tail tipped with a broad bar of black, which is the colour of the bill also. In this state of plumage it has been mistaken for a distinct species, and called the *Tarrook*.

The IVORY GULL (*Larus eburneus*) is distinguished by the immaculate white of its plumage. It is a native of the shores of the arctic seas.

The GREAT BLACK-BACKED GULL (*Larus marinus*) is a native, though not in abundance, of our shores,



THE GREAT BLACK-BACKED GULL.

and is generally seen either alone, or in small flocks of five or six. Its breeding stations are the Bass Rock,

various places in the Orkneys, and also Steep-holmes and Lundy Islands in the British channel. It is spread over the rocky shores of the continent, but does not extend its visits to very high latitudes.

The Black-backed Gull is one of the largest and finest of its congeners; and as it flies slowly along, it presents a conspicuous appearance among the flocks of smaller species; its voice is hoarse and sonorous, and may be heard at a great distance. With the exception of the back and wings, which are black, (the quills having white tips,) the rest of the plumage is of a pure white. The young birds have the upper surface of a blended gray and brown, the lower grayish white, streaked and marbled with dusky chocolate brown.

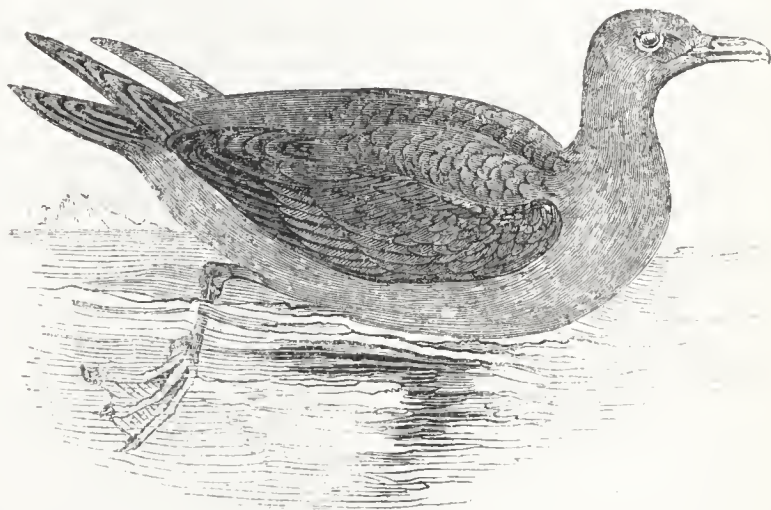
With the general manners and habits of the True Gulls, the PARASITIC GULLS (*Lestris*) conjoin habits of daring and ferocity, which render them the tyrants of their less warlike relatives. Fish is the food upon which they chiefly live; but, like the sea eagle, they seldom gain their livelihood by their own industry; they are the unceasing enemies of the Gulls, harassing them continually in order to make them drop the booty they have seized, or disgorge it if swallowed. Sweeping down with the velocity of an arrow, they catch it with the utmost adroitness before it reaches the water, and then continue their warfare. Their predatory habits are conjoined with external characters, which proclaim them to the eye of the naturalist; the beak is strong, thick, with an extended cere at the base, and hooked at the tip; and the claws are large and sharp, the inner one being the strongest and most hooked. The wings are long and pointed, and their flight is strong, astonishingly rapid, and performed in successive curves, or arched lines, so that it bears no resemblance to the flagging course of the Gulls. The tail rounded, the two middle feathers exceeding the rest considerably, and tapering to a point.

In addition to fish, obtained as described, they also feed on carrion, and the refuse of the sea thrown on the beach. The species are not very numerous, and are all

natives of the northern latitudes, as high as the polar circle.

Three species are natives of Europe, the Skua, the Pomarinē Gull, and the Parasitic Gull. Of these, which closely resemble each other in manners, the SKUA (*Lestris catarractes*, TEMM.) is the largest and most remarkable. The Skua inhabits the arctic regions of Europe, Asia, and America, and is very abundant in the Orkneys and Shetland Isles, “breeding in communities upon Foulah Unst, and Rona’s Hill, in Mainland.” In the southern part of Great Britain it is a rare and accidental visitor.

The natural boldness and ferocity of this active powerful bird, are wrought up to the highest pitch during the season of breeding, when it has its young to defend and provide for. “It will,” says Selby, “at that time attack even man without hesitation, should he happen to approach the site of its nest; and so impetuous is its attack, that the natives of the Shetland Isles are compelled, on such occasions, to defend themselves by holding up a



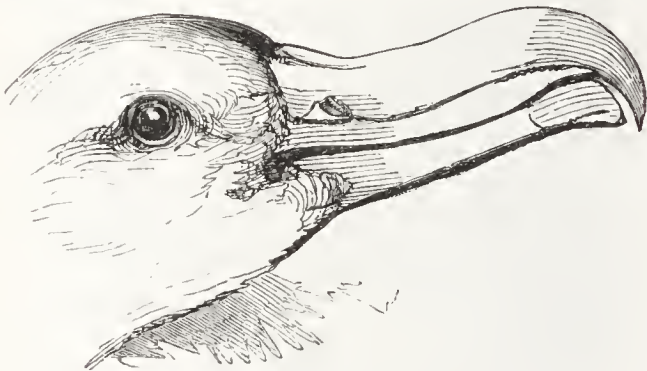
THE SKUA.

knife, or sharp stick, upon which the assailant has been frequently known to transfix and kill itself whilst making pounces upon the head of the intruder. Dogs, foxes, and other animals are instantly attacked, and so severely dealt with by the wings and beak of the strong pugnacious Skua, as to be soon driven to a hasty retreat, and no bird

is permitted to approach with impunity; the eagle itself being beaten off with the utmost fury, should it happen to venture within the limits of the breeding territory.” After the duties of incubation are over, the Skua retires to the open sea, where it passes a solitary life during the winter, far from land; there it keeps up a warfare on the flocks of gulls, whose actions it watches, and whose booty it seizes by force. To this it adds the floating carcasses of seals, whales, or other animals, as agreeable food, grasping the flesh with its strong claws, and tearing it with the beak as we see in birds of prey.

The nest of the Skua consists of dried weeds; the eggs are two in number, of a dark olive green, blotched with brown. The head is deep brown; the neck (of which the feathers are wiry and pointed) and the under plumage brownish gray, marbled or tinged with reddish brown. Upper plumage dark umbre brown, with lighter shades of reddish brown; tail white at its base, the remainder deep brown; the two middle feathers exceed the rest, but less so than in the other species; bill and legs black.

The genus *Diomedea* here claims our notice; it con-



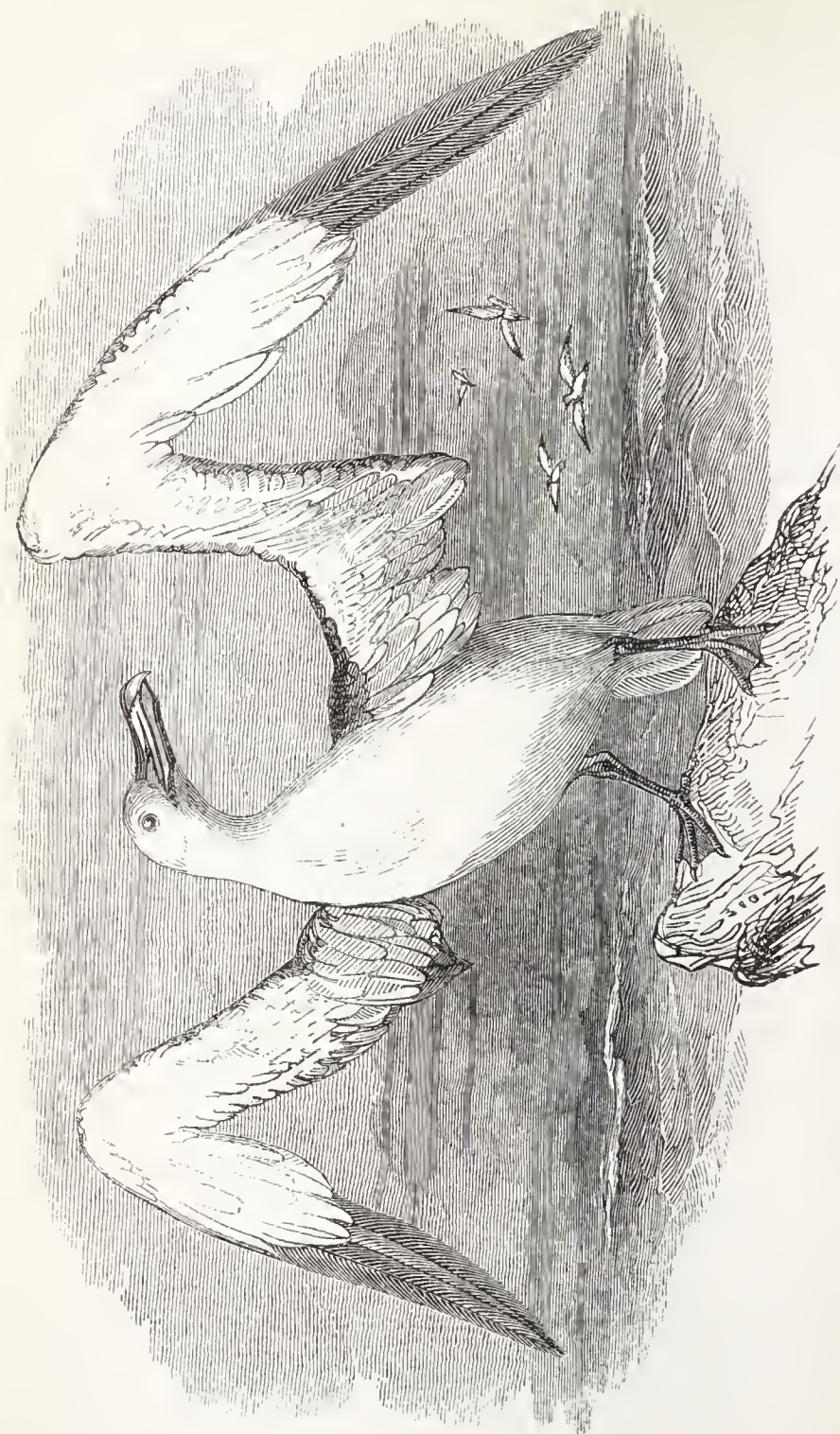
BEAK OF THE ALBATROSS.

tains the Albatross and a few allied species, the largest of oceanic birds. The beak is large, strong, hooked abruptly at the tip, and marked with a longitudinal furrow on each side, which terminates at the nostrils, which are enclosed in a short tube of horn, directed obliquely forwards; toes three before, united by webs, none behind; the wings extremely long and narrow. These birds are natives of

the intertropical seas and southern ocean, over whose vast expanse they sail, on outspread and almost motionless wings, in search of prey, such fishes as approach the surface. - To the flying fish they are peculiarly obnoxious ; driven by the dolphin out of the water, to vibrate their finny wings in a short flight through the air, these mighty birds sweep upon them, and seize them with their powerful beak, the edges of which, in both mandibles, are sharp as a knife. Fish of many pounds in weight are securely grasped by this formidable instrument, and borne away with the utmost ease. Their voracity is equal to their powers, and they are capable of swallowing a very large fish at a single bolt.

The vast extent of wing which the Albatross possesses, renders it a difficult matter for the bird to raise itself from the surface of the water on which it is reposing ; it has to skim, as it were, for some distance, violently agitating the wings, before it can fairly mount ; but once up, it sweeps majestically along on pinions calmly expanded to the gale ; now wheeling round, now plunging amidst the billows, till covered with the dashing spray ; now soaring in the sky, now sailing before the wind, now making way against it, as if possessing the control of the elements. The fact is, that the apparatus of air cells which intervene between the muscles and the skin, and occupy the interior of the bones, in addition to the vast spread of wing, in which no bird exceeds the Albatross, so contributes to diminish its specific gravity, that it has merely to give to its body, when duly elevated, the impulse needed to propel it onwards ; for as a fish floats in the water, so does the Albatross in the air.

The best known and most celebrated of the birds of this genus is the WANDERING ALBATROSS, (*Diomedea exulans*.) Far far from land is this gigantic bird seen, usually skimming close over the surface of the ocean, but sometimes soaring high above the clouds, hurrying perhaps with food to its distant home. The rocky and desolate islands scattered in the ocean are the spots to which it retires for incubation ; of these we may particularize the Crozettes, Marion Islands, Tristan d'Acunha,



THE WANDERING ALBATROSS.

&c. Latham mentions Patagonia and the Falkland Isles as among its breeding places, and observes; “To the latter they come about the end of September, or beginning of October, among other birds in great abundance. The nests are made on the ground, with earth, of a round shape, a foot in height, and indented at top; the egg is larger than that of a goose, white marked with dull spots at the large end, and is thought to be good food. While the female is sitting, the male is constantly on the wing to supply her with food; and during this period they are so tame as to suffer themselves to be shoved from the nest while the eggs are taken from them; but at other times, when caught, they will defend themselves stoutly with the bill. Their cry is said to be a harsh sonorous kind of braying. The Wandering Albatross has been often noticed between six and seven hundred leagues from land, in the middle of the Southern Ocean; it is reasonable therefore to conclude that it habitually reposes like the gulls, which it otherwise much resembles, while floating on the surface of the water, though it neither dives nor can be said truly to swim. The length of the Albatross is between three and four feet; and in extent of wing the measurement is from nine to ten, or even eleven feet; many voyagers mention them as greatly exceeding these dimensions, but of numerous specimens which we have examined, none have exceeded the proportions stated. The general colour is a dull white, clouded with pale brown, the wings being black; the bill is yellow; the legs, flesh-colour. From the eye to the end of the beak, the specimen before us measures nearly eight inches.

The other species are the *Diomedea spadicea*, *D. chlororhynchus*, *D. fuliginosa*, *D. brachyura*, and *D. melanophris*. The three former, together with the *D. exulans*, were noticed, by Capt. Carmichael, breeding on the island of Tristan d’Acunha, and an account of the differences in habit exhibited by each species is given in the twelfth volume of the Linnæan Transactions for 1818. Contrary to Latham’s assertion, the *D. exulans* and

spadicea “ give themselves no trouble in constructing their nest, merely choosing a dry spot of ground and giving it a slight concavity to prevent the egg from rolling out of its place;” but the black Albatrosses (*D. fuliginosa*) which “ are gregarious, building their nests close to each other,” construct them of mud, raised five or six inches, and slightly depressed at the top.” “ There was something extremely grotesque in the appearance of these birds, standing on their respective hillocks, motionless, like so many statues, until we approached close to them, when they set up the strangest clattering with their beaks, and, if we touched them, squirted on us a deluge of fetid oily fluid from the stomach.” . . . The *D. chlororhynchus* builds a solitary nest, retiring to some sheltered corner, and selecting in particular “ the small drains that draw the water off the land into the ravines. There it runs up its nest to the height of ten or twelve inches, of a cylindrical form, with a small ditch around the base.” . . . “ We could not help admiring the utter unconsciousness of danger displayed by them on our approach; they never showed the least disposition to move out of our way; even when kicked or pulled off their nests, they made not the smallest show of resistance, but quietly returned to their post or stood still until we past on.”

The Petrels naturally succeed the albatrosses. Tenants of the ocean, from whose waves they derive their sole subsistence, they skim the deep for food, and are mostly seen during gloomy weather, or when the sun is below the horizon; in the arctic regions they are busy during the whole of the clear bright nights which are peculiar to those latitudes. They breed in holes among the rocks or sands of barren shores or islands, but never, except driven by stress of weather, venture far inland; on the contrary, they are often observed hundreds of miles out at sea, braving the tempest and the storm. With singular alertness they appear to run up and down the billows, aided by outstretched wings, but are seldom seen to settle on the surface; nor have they the power of diving. The term Petrel, (Little Peter,) their general name in Europe,

has been given in consequence of their thus walking on the water, in allusion to that remarkable circumstance in the life of the apostle, (recorded in the fourteenth of Matthew,) who, at the command of Jesus, hesitated not to trust his weight to the liquid element, but whose faith failed him when the wind arose and he was beginning to sink, when his Lord, whose help he implored, stretched forth his hand, able to save him. And is it not thus even now with the believer, tossed on the boisterous waves of a stormy and changing life, when beginning to sink, he calls upon the Lord Jesus Christ, and is upheld?

The Petrels are divided very naturally into three sections or genera; the first of these is the genus *Procellaria*. The beak is moderate, strong, and hard, with sharp edges to the mandibles, arched and hooked at the tip, the point of the lower mandible being much compressed. The nostrils open into a convex elevated tube, opening by a single rounded orifice on the ridge of the beak. Wings long and pointed; legs of moderate length; toes, three before, webbed completely, hind toe represented by a slightly curved nail.

The Fulmar Petrels, which the present genus contains, are remarkable for their powerful bill, broad at the base and hooked at the tip. They are more diurnal than the rest of the Petrels, and skim the waves with an easy buoyant flight. Occasionally they repose on the ocean, but seldom visit land except for the purpose of incubation. Their food consists of the blubber of whales, fish, marine insects, &c.; and, as is the case with all the rest, they possess the power of squirting a clear liquid oil from their tubular nostrils with considerable force; this seems their usual and perhaps only mode of defence. They are inhabitants of the higher latitudes of both hemispheres, and breed in the holes of rocks, laying but one egg.

Of this genus the NORTHERN FULMAR, or FULMAR PETREL, (*Procellaria glacialis*,) is the best example. Common in the icy seas, being at all times abundant in Davis Straits and Baffin's Bay, it would appear to be in some degree migratory; for Captain Sabine, who observed it in these places, states, that while the ships were

detained by ice in Jacob's Bay, lat. 71, from the 24th of June to the 3d of July, Fulmars were passing in a continual stream to the northward, in number inferior only to the flight of the passenger pigeon in North America. In more southern latitudes the Fulmar is merely seen as an accidental straggler; there is, however, one place within the British dominions where it is known to breed, namely, the steep and rocky St. Kilda, one of the Western Isles of Scotland. Here numbers arrive in spring and take up their temporary abode in the holes and caverns of the rock. They constitute a source of emolument to the inhabitants, who eagerly venture, at the risk of life, to scale the tremendous and overhanging cliffs in search of the young, from whose bodies they obtain down and oil. Pennant observes that "no bird is of such use to the islanders as this; the Fulmar supplies them with oil for their lamps, down for their beds, a delicacy for their tables, a balm for their wounds, and a medicine for their distempers." He adds also, that it prognosticates the change of wind, no west wind following its visit, at least for some time, but the contrary if it returns and keeps out at sea.

The Fulmar lays but one egg, white in colour, and very brittle. The young are fed with oil thrown up by the parents, and which is most probably the product of the food upon which they themselves subsist; this consists of the blubber of whales and seals, to obtain which multitudes follow in the track of whaling vessels, and are often observed to alight in flocks upon the dead or dying giant of the ocean, tearing up the skin with their hooked beaks, and gorging on the blubber to repletion. The Fulmar is also numerous off Newfoundland, and a constant attendant upon the fishing vessels, in order to gain the livers and offal of the codfish..

The bill is bright yellow; head, neck, lower part of the back, and tail, with all the under parts, pure white; back and wing-coverts, black; quill-feathers, blackish gray; secondary quill-feathers, bluish gray; legs, yellow; length, sixteen inches. The young birds have the white of the adult tinged with ash colour, and the upper plumage brownish.

The next genus is that termed *Puffinus*, in which the

beak is longer than the head, slender and compressed, the nostrils opening through two contiguous tubes on the surface of the beak.

The Petrel-Puffins, or Shearwaters, resemble the Fulmars in their food and general habits ; their legs, however, are placed farther backwards, and the tarsi are longer and much compressed, so as to facilitate them in their practice of running along the surface of the waves in search of food. They feed more by night than by day, and are busy and alert in murky and tempestuous weather. They breed in the holes of rocks, rabbit-burrows, &c.; the egg is single, and white.

The PETREL-PUFFIN, MANKS PUFFIN, or SHEARWATER, (*Puffinus Anglorum*,) is especially abundant in the Orkneys, where its eggs and young are an object of pursuit to the inhabitants, who scale the most awful precipices and rocks in order to obtain the booty. It arrives in March, and, after the breeding season, migrates to the southern shores of Europe. It was formerly abundant in the Isle of Man, but is now unknown there, though, in the time of Pennant, multitudes were taken and salted for food. Probably the havoc made among the birds, old and young, as well as their eggs, has led to the abandonment of the place. The Shearwater feeds on marine animal refuse of every kind, which it skims from the sea, as, half flying half running, it rapidly traverses the waves. It feeds its young with oil, like the fulmar.

The Manks Shearwater does not appear to be very extensively spread. In Britain it is almost exclusively confined to our western coast; but is common on the coasts of Ireland, and is said to have been seen off Norway. It is rare on the shores of Holland or France. The whole of the upper plumage is deep grayish black, with a glossy lustre ; sides of the neck and breast faintly barred with gray and white ; under surface white, with a patch of black behind the thighs ; bill, yellowish brown ; tarsi, yellowish red ; wings reach to the extremity of the tail, when folded. Length, thirteen inches.

The third genus is that containing the Stormy Petrels,

(*Thalassidroma*, Vig.) We here find the bill short, very compressed, and suddenly hooked at the point; the nostrils contained in one tube, but showing two distinct orifices in front; the tail square, or slightly forked; the tarsi long, slender, and almost as flexible as whalebone; the hind toe represented by a small, straight nail.

The Stormy Petrels are closely allied to the shearwaters, from which, indeed, they differ principally in the form of the beak and tail, and the greater comparative length of the tarsi. They are birds of small size, but yet they brave the driving of the wind and lashing of the billows, as if gifted with a miraculous power. They are decidedly active during twilight, gloomy weather, when dark clouds obscure the sky, or at night. Their lurking-places by day are the holes of rocks, deserted burrows, &c. Their food consists of insects, small mollusca, and oily matter, of an animal nature, which floats on the sea. Their flight is so rapid, and their motions so abrupt and prompt, that the eye can scarcely follow them. Harbingers of the coming storm, they crowd around vessels at sea, and, buoyant as a feather, mount up the billow and descend into the trough with admirable alertness. It is seldom that they are seen at midday when the skies are clear. Their distribution is very wide, some being found in both hemispheres, and in every variety of climate. They breed in the crevices of rocks, and lay but one egg, which is white and comparatively large. As they fly, they utter a pleasing twittering note.

We select, as our example, the COMMON STORMY PETREL, (*Thalassidroma pelagica*,) so well known to sailors under the name of “Mother Carey’s Chicken.”—This interesting little bird, which seems to sport amidst the horrors of the tempest, is a native of our British shores, as well as of many parts of the continent; its range appears, indeed, to be very extensive, though it is more than probable that other species, closely resembling it, and requiring the examination of a naturalist to distinguish them, are commonly confounded with it. Temminck observes, that in the Southern Ocean a Petrel (*Thalassidroma oceanica*) is found a little larger than that of

Europe, with wings and tarsi extremely long ; and another species, the Fork-tailed Petrel, (*Thalassidroma Leachii*, TEM.) also larger than the common species, breeds annually at St. Kilda, and has been taken on the coast of Scotland and also near Bristol. In manners and habits all agree.

The Stormy Petrels, when seen out at sea, are dreaded as the forerunners of a tempest. Invited from their lurking-places by the lowering atmosphere, which spreads a dull twilight over the deep, they spring forth, and with wings more rapid than the swallow's leave the shore behind. Up and down the waves they run, and the



THE STORMY PETREL.

surge that threatens the vessel is no terror to them. That they should be seen by mariners in such weather only, is not surprising, it accords with their known habits ; but that crowds should surround a ship, has been differently explained. Most naturalists have attributed the circumstance to their expectation of being somewhat shielded from the tempest ; we are, however, inclined to agree with Mr. Selby, who considers their flying round a

vessel, or following in its wake, to be apparently “more for the purpose of picking up any food that may occasionally be thrown overboard, or from their natural food. the smaller marine insects, mollusca, &c. being brought within reach by the action of the vessel, than for shelter and protection,” as the bird is observed “to brave the roughest seas, and even to amuse itself by skimming along the hollows of the waves or dashing over their summits with amazing velocity.”

The young of the Petrel are fed with oil by the parent birds, in the same manner as the young of the fulmar. The old birds, when about to commence their search for food in the evening, are very clamorous, making a shrill kind of whistle, but are silent during the day, which is their season of tranquil repose. So saturated with oil is this bird, from the food upon which it subsists, that the inhabitants of the Ferroe islands often convert it into a lamp, by merely drawing a wick of cotton through the body, which keeps absorbing the oil, and continues to burn till it becomes exhausted. The general plumage is black, with a white band across the upper tail-coverts. Length, five inches and a half.

As an addition to this sketch of the history of the Stormy Petrel, no apology will be required for inserting the following beautiful poem by B. Cornwall.

THE STORMY PETREL.

A thousand miles from land are we,
Tossing about on the roaring sea;
From billow to bounding billow cast,
Like fleecy snow on the stormy blast:
The sails are scattered abroad like weeds,
The strong masts shake like quivering reeds;
The mighty cables and iron chains,
The hull which all earthly strength disdains,
They strain and they crack; and hearts of stone
Their natural hard proud strength disown.

Up and down! up and down!
From the base of the wave to the billow's crown,
Amidst the flashing and feathery foam,
The Stormy Petrel finds a home;—
A home,—if such a place can be
For her who lives on the wide wide sea,

On the craggy ice, in the frozen air,
 And only seeketh her rocky lair
 To warm her young and teach them to spring
 At once o'er the waves on their stormy wing!

O'er the deep! O'er the deep,
 Where the whale, and the shark, and the swordfish sleep!
 Outflying the blast and the driving rain,
 The Petrel telleth her tale;—in vain:
 For the mariner curseth the warning bird,
 Who bringeth him news of the storms unheard!
 Ah! thus does the Prophet of good or ill
 Meet hate from the creatures he serveth still;
 Yet He ne'er falters:—so, Petrel! spring
 Once more o'er the waves on thy stormy wing.

To these poetical verses we add the following, which cannot fail to be interesting to the christian mind.

THE PETREL.

The Petrel floats on the stormy foam,
 While all around is drowning;
 So the christian smiles in his tranquil home,
 When earthly joys are frowning.
 Where worldly ambition but finds a grave,
 Hope rests on her downy pillow;
 As the Petrel sleeps on the ocean wave,
 While tosses the raging billow.
 The blast is loud and the night is dark,
 And chill are the restless surges;
 Yet the christian floats on his lowly bark,
 As buoyant his spirit emerges.
 Earth weighs not down his elastic wing
 That aspiring to heaven uprises;
 His sorrows are joys, and his winter is spring,
 And all life's blanks are prizes.
 He is caged on earth, but he treads not its sod;
 He spurns its confined dominions;
 His soul is ethereal, he dwells with his God;
 Heaven-plumed are his joyful pinions.

S. C. W.

The family ANATIDÆ comprehends the Swans, the Ducks, the Geese, and the Mergansers, birds to which in an especial manner the term “Wild Fowl” has been popularly given.

These birds are decidedly aquatic in their habits, and swim with ease and grace. On the land their gait is awkward and constrained. Their food consists of fishes, insects, shellfish, vegetables, and grain. Some avail themselves of their length of neck alone in order to obtain their subsistence, plunging the head below the surface of the water, and groping with their bills in the mud. Others dive to the bottom of lakes and shallow seas for the means of their subsistence; but all dive to escape pursuit. Some inhabit fresh water lakes and rivers, others exclusively the sea or salt water lakes; and most of them emigrate, following the larger rivers, and coasting the shores of the sea. Several are reclaimed by man, and are domesticated around his habitation, supplying him with food.

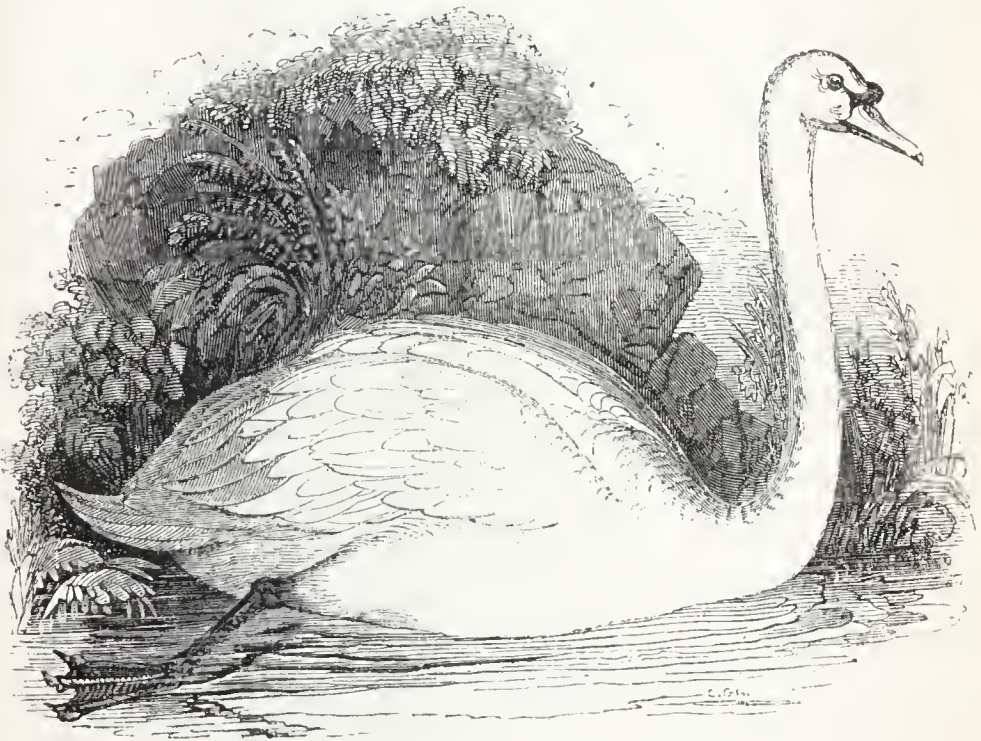
If we look at the contour of the birds of this group, we cannot but be struck with their fitness, their express adaptation, for the station and habits assigned them. We see, in the first place, a boat-like form of body, well clothed with an under vest of down, and an outward coat of smooth, varnished, or oily feathers which repel the water. We see the feet large, spreading, and webbed, terminating in short stout tarsi, more or less compressed. We see the neck long, and the beak large, broad, and flat, armed with a regular series of laminated teeth, to act as strainers, along the edge of each mandible. Added to all this, the muscular powers are considerable, and their flight, when they have attained a certain elevation in the atmosphere, rapid and capable of long continuance. Nor is there less adaptation in their internal structure; in those that feed on vegetable matters, we find the gizzard moderately strong and muscular, but in those (and it is the case with a large tribe of the Ducks) that feed on shell-fish, which they obtain at the bottom of the sea, the muscular walls of the gizzard are of very considerable thickness and power, and the interior is lined with a thick, tough, hard membrane; and all this their Creator has wisely ordered that the shells, with their nutritious contents, may be comminuted or ground to a pulp.

First, the Swans, (*Cygnus*.) The generic characters are as follows:—Bill, equally wide throughout its whole length, elevated at the base, and depressed towards the

tip, where a nail-like projection bends down over the tip of the lower mandible; the edges of both mandibles furnished with a series of transverse upright laminæ or plates, which are nearly hidden when the bill is closed; nostrils, oblong and lateral; neck, long; wings, long and ample; legs, short and placed far backwards, the toes before fully webbed, behind small and free; plumage, thick and close.

The food of these birds, preeminent among the *Anatidæ* for grace and elegance on their congenial element, consists principally of vegetable matter, such as grain, and the roots, stems, and leaves of aquatic plants; but never fish, as some have supposed. Three species are natives of Europe.

The TAME or MUTE SWAN (*Cygnus Olor*) is by far the most conspicuous for its beauty and the elegance of



THE TAME SWAN.

its attitudes, which seem as if purposely intended for display. Gliding over the water with arched neck and the

plumes of its wings proudly expanded like sails to catch the breeze, it arrests the attention and courts the admiration of every observer. In our island and the adjacent parts of the continent, this noble bird is known only in a state of more or less complete domestication; it is not strictly indigenous with us, though it breeds and remains on our rivers and ornamental sheets of water without attempting to depart.

In a wild state it abounds in the eastern portions of Europe and the adjacent parts of Asia, where inland seas, vast lakes, and extensive morasses afford it food and a congenial home. In Siberia and on the shores of the Caspian Sea it resides in great multitudes; but, like most of the waterfowl, is migratory in its habits.

Gentle and inoffensive as it is, the muscular powers of the Swan render it, on the water, a formidable enemy when driven to act on the defensive; and it has been known to give successful combat to animals, and even man, when protecting its young.

The Swan makes her nest in the midst of reeds or osiers, near the water, and often on a small island; it is constructed of a mass of twigs or stalks, lined with feathers; the eggs are six or eight in number. The young birds, or cygnets as they are termed, are covered universally with a grayish brown plumage, and do not acquire the white, in its purity, till the beginning of the third year.

Independent of its superior size, the Tame Swan is easily distinguished by its beak, which is throughout of an orange red, with the exception of the nail at the tip, the edges of the mandibles, the nostrils, and the naked cere at the base, which extends to the eye and rises in the form of a knob before the forehead. The male measures upwards of five feet, and more than eight in the expanse of wings; the weight is from twenty to twenty-five pounds, and sometimes more. The Swan is very long-lived, often attaining to more than thirty years of age.

The beautiful down, so much prized when made up into articles of comfort or elegance, is the under-clothing of the whole of the lower surface of the body and the

neck ; it is more thin, but not altogether absent, on the back. It cannot be seen when on the living bird, because it is covered by the outer plumage, which consists of large closely set feathers.

The *song of the dying Swan*, of which we have all heard, is, we need not say, a poetical fable. Perhaps, however, like many other fables, there may be a sort of foundation for it ; for the voice of the Swan is low, soft, and murmuring, and when heard from multitudes congregated together, has a very pleasing effect.

The windpipe, or trachea, is a simple tube devoid of convolutions, and entering at once into the chest.

Distinguished from the Tame Swan, not indeed in general habits, but in size and several important anatomical characters, the WILD SWAN, HOOPER, or WHISTLING SWAN, (*Cygnus ferus*,) may be noticed. A native of nearly the whole of the northern hemisphere, this stately bird is migratory, passing northwards as far as the borders of the arctic circle, to breed, and thence returning southward to winter, regulated by the severity of the season. In America, the emigrations of the Wild Swan are bounded by Hudson's Bay on the north, and extend southwards as far as Louisiana and the Carolinas. In Europe and Asia it extends its visits as far as the warmer latitudes, and some pass into the contiguous districts of Africa, especially Egypt. From this statement we may at once conceive that the present species is very widely distributed.

The Hooper may be regarded as a regular winter visitor to the Orkneys and Western Isles of Scotland ; but its appearance in England is not so certain, and its migration farther southwards is entirely regulated by the severity of the weather. These journeys are performed in flocks of greater or less extent, the numbers being from five to fifty, or more ; they take up their abode on lakes, rivers, or inundated fields, and are shy and wary. On the first opening of spring, they wing back their way to their northern breeding-places, scattering themselves

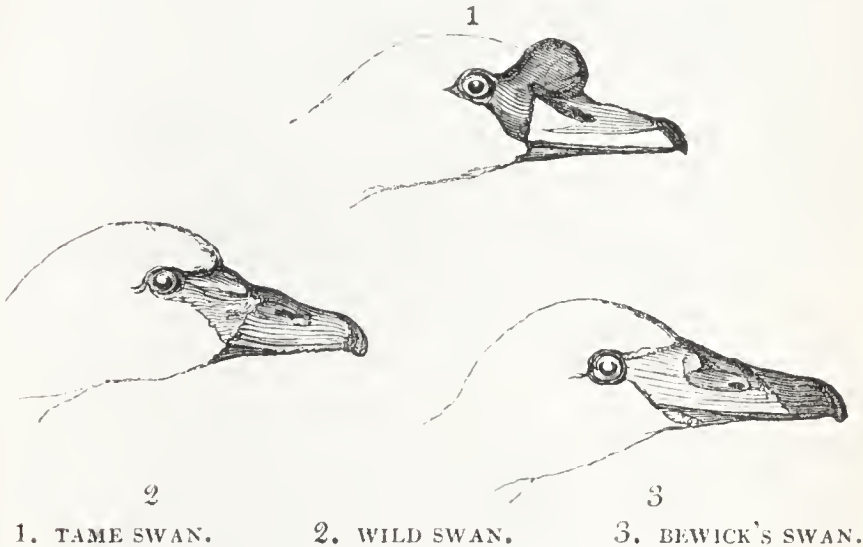
over Norway, Iceland, Lapland, Spitzbergen, Kamschatka, Siberia, in the old world, and the high northern lakes in the transatlantic continent.

The down of the Hooper or Whistling Swan is superior to that of the tame species, and forms a valuable article of traffic. Its voice is harsh and discordant, except when heard from large flocks at a distance, so as to fall blended and softened on the ear. It consists of two notes, like the sound of a clarionet attempted by a novice. The Hooper is much less graceful than the tame swan; in swimming it is never seen to throw up the plumes of the wings, nor assume any striking attitude, but carries the neck erect, at a right angle with the body, instead of in a sweeping and elegant curve. In size it is inferior to the preceding species, but is much larger than the third European species, of which we shall presently speak.

The flight of the Wild Swan or Hooper is extremely rapid; Hearne asserts, that when going with a brisk gale, "they cannot fly at a less rate than a hundred miles in an hour;" and that, to shoot with any chance of success, aim must be taken "ten or twelve feet before their bills;" but when flying across the wind or against it, their progress is slow and the shot easy.

No people rejoice more on the return of the Wild Swan to their dreary realms than the Icelanders. Independently of their being indications of the advance of spring, these birds supply the natives with down and feathers, which are of great value, not only for domestic comfort, but as an article of barter. The Swan-hunt takes place in the month of August, at which time the old birds are unable to fly, having cast their quill-feathers. The natives then assemble in bodies, and proceed to the morasses and resorts of the Swan, "attended by dogs, and mounted upon small but active horses, trained to pass over bogs and through marshy soil; the chase then commences, and many are ridden down; but the greater number are caught by the dogs, which always seize the neck, a mode of attack that causes the bird to lose its balance and become an easy prey."

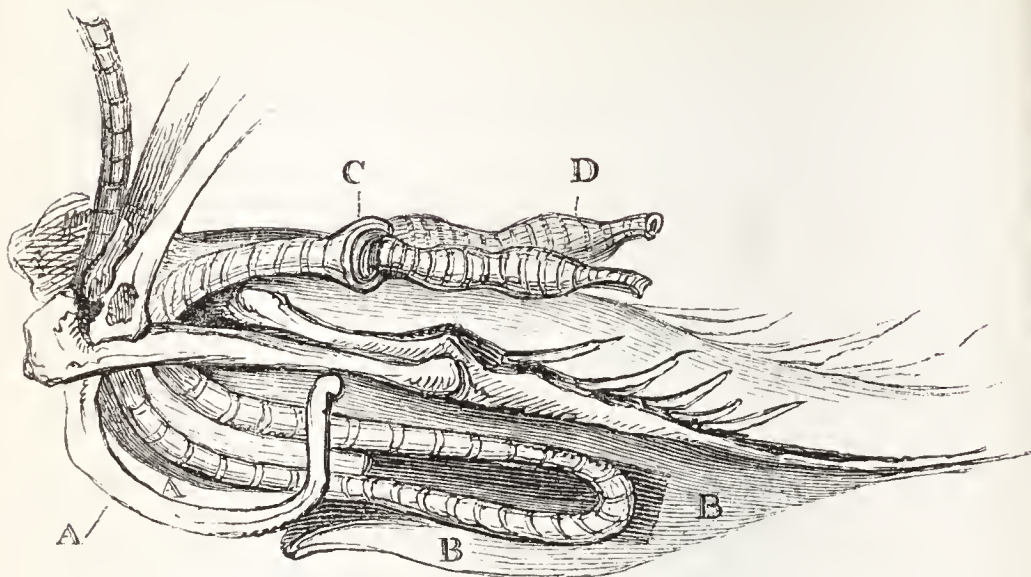
The third species is BEWICK'S SWAN, (*Cygnus Bewickii*, YARRELL,) which has only very recently been discriminated from the hooper, which it closely resembles in form, locality, habits, and manners. We have therefore nothing to add respecting its history to what we have already stated, but shall endeavour to render the grounds of distinction as clear as possible. The following is a sketch of the head of each of the above species.



1. The Mute or Tame Swan (*Cygnus olor*).—The bill is long, depressed; with a black nail, black edges, and nostrils, black cere, and fleshy tuberosity. The trachea passes from the neck into the chest without any convolution, and the number of ribs is eleven on each side.

2. The Wild Swan, or Hooper, (*Cygnus ferus*). We find the bill of the present species destitute of protuberance at its base, and the colours are in a great degree reversed, the base as far as the eyes being of a bright yellow, and the point as far as the nostrils (but not including the nostrils) and sides black; so that two-thirds are yellow. This difference in the bills of the Tame and Wild Swan serves at once to distinguish them. But the difference does not end here. The number of ribs is twelve on each side; and the trachea, as the

following rough sketch shows, instead of entering at once into the chest, passes into a cavity in the keel of the



breast-bone, and so proceeding for a considerable distance, turns upwards abruptly, and is again inflected over the edge of the breast-bone before penetrating into the chest. In our sketch the keel of the sternum is opened so as to expose the convoluted course of the trachea, of which *c* is the inferior larynx; *d* the bronchi, which are particularly large; *A* the furcula, or merry-thought; *B* the keel of the sternum.

3. Bewick's Swan, (*Cygnus Bewickii*.) This bird can only be confounded with the preceding, but is to be distinguished by the following points. The general size is a fourth less; and the bill is more duck-like, being thicker, shorter, and higher at the base, where it joins the forehead; and the black extends over a greater space, (nearly two-thirds,) so as to include the nostrils. As it regards internal structure, the similarity is as striking as between the bills, though there is still a decided difference. The trachea is of smaller calibre, and passes more deeply into the keel of the breast-bone; and the bronchi or subdivisions are less than half the length of the same parts in the hooper.

Among the Swans we may enumerate a very beautiful species, (*Cygnus nigricollis*,) from Chili, the Falkland Isles, the Rio del Plata, and other parts of the coast of South America, distinguished by a black neck, which contrasts well with the snowy whiteness of the rest of its plumage. The bill is red, the legs flesh-colour; in size it equals the hooper.

We shall conclude our sketch of the Swans with one which nullifies the proverb of the classical writers of antiquity, who talked of the Black Swan as a bird out of the range of possibility :

“ Rara avis in terris, nigroque simillima cygno.”

JUVENAL.

That “*rara avis in terris*” is, with many other astonishing productions, a native of New Holland and Van Dieman’s Land, where it abounds on the lakes and larger rivers, one of which (Swan River) takes its name from the multitudes which habitually frequent it.



THE BLACK SWAN.

The BLACK SWAN (*Cygnus atratus*, BENNETT,) has

all the manners of its European congeners. It is usually seen in small flocks, which are shy and wary. Of late years this elegant bird has been introduced into England, where it thrives and breeds, and will no doubt soon become as common as the tame swan on our ornamental lakes and rivers.

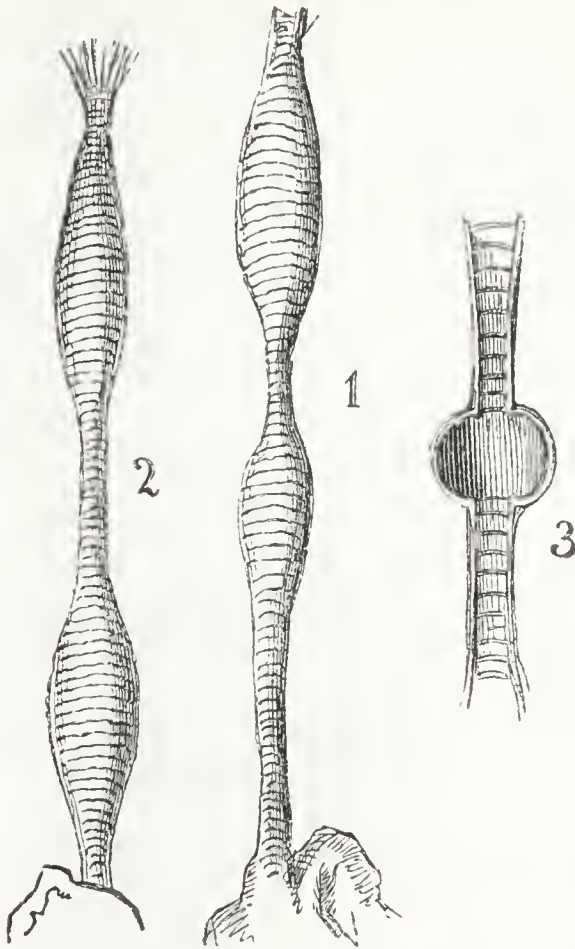
The general colour is perfectly black, with the exception of the primary and a few of the secondary quill-feathers, which are white ; the bill is bright red ; the legs and feet ash-colour.

The Ducks next demand our notice. They resolve themselves into two very distinct and natural sections : the first of which contains such as feed chiefly on vegetable matter, insects, and the fry of fishes, which they obtain merely by plunging the head and neck into the water, so as to search, by means of the bill, in the mud for their food, but do not dive for it. We may call them the True Ducks. They frequent for the most part fresh waters ; the hind toe is free, without a membrane. Their flesh is good.

The second section contains Ducks possessing a gizzard of enormous power, calculated for bruising the shells of marine *mollusca*, which, with aquatic insects, small fish, and subaquatic plants, form their food. These they obtain by diving down to the bottom of the sea, their habitual resort. The beak is shorter, stouter, and more pointed than in the true Ducks ; the neck shorter ; the body more compact, the ribs reaching farther backwards so as to enclose the whole of the internal viscera, and protect them from pressure when at a great depth below the surface. The hind toe is furnished with a lobed membrane. Their flesh, except that of a few remarkable species, is rank and unsavoury. We may denominate them, for distinction's sake, the Diving Ducks.

In both sections the male birds of many species are peculiar for singularities in the structure of the trachea. Many have the tube contracted and dilated at different points, or even furnished with a hollow globe of bone, as in the Velvet Duck. Nor are these peculiarities restricted

to the Ducks; they run more or less through the geese and mergansers. The following sketch will illustrate our meaning :—



1. Is the larynx of the *Goosander*, a species of *Merganser*.

2. Of the *Anas rufina*.

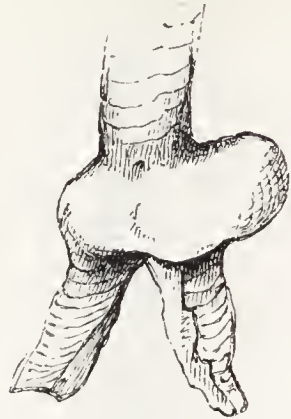
3. Is a section of a portion of the tube of the *Velvet Duck*, showing the osseous enlargement.

The anatomical peculiarities of the larynx in Ducks do not however end here. Added to dilatations and contractions of the tube, it not unfrequently happens that the *inferior larynx*, or portion whence the *bronchi* diverge, is formed into a hollow drum or labyrinth, consisting chiefly of bone, or is furnished with a bony hollow drum, as it were, attached to it. In elucidation of our meaning,

we subjoin the following three sketches, which represent this part in the Gadwall, the King Duck, and the male Musk Duck.



THE GADWALL DUCK.



THE KING DUCK.



THE MUSK DUCK.

SECTION I.—THE TRUE DUCKS.

As the genera are here numerous and formed on somewhat arbitrary grounds, we shall not attempt to follow them out, but proceed to give a few examples of our section.

The MALLARD, or Wild Duck, (*Anas Boschas*,) is smaller, more sprightly and active, and far more beautiful than the dull domestic stock of which this species is the original; few of the tribe display a more elegant and

exquisitely pencilled plumage than the present. Spread almost universally over the globe, it is indigenous in the British islands, breeding in our fens and marshes; the male and female pair as other birds in general, but do not mutually assist each other in the duties of incubation and in the care of the young brood, for when the female begins to sit, the male deserts her, “and joins others of his sex similarly situated; so that it is usual to see the Mallards after May in small flocks by themselves.”

In general the nest is made among the herbage, close to the water, but instances are on record of this bird having chosen the deserted nest of a crow, or magpie, in which to rear its brood. Latham states, that at Etchingham, in Sussex, one was discovered sitting on nine eggs, which were laid on a sort of frame-work of twigs, arranged crosswise, in an oak twenty-five feet from the ground; and Colonel Montagu mentions one which made a nest in Rumford tower, hatched her young, and brought them down in safety to a piece of water at a considerable distance. Though the Mallard breeds with us, and on the adjacent parts of the continent, it must nevertheless be regarded as migratory in its habits, especially in more northern latitudes, whence great numbers journey southwards on the approach of winter, sojourn in our climate, as well as in various parts of the south of Europe, and return northwards, to their breeding places, on the commencement of spring.

The flesh of the Wild Duck is highly esteemed; hence various devices have been resorted to in order to effect a wholesale capture for the supply of the markets. Of these the decoy (a contrivance by which the flocks are allured into nets at the extremity of an artificial canal or long trench filled with water, leading out of the lake or marsh,) is the most successful. “In ten of these decoys in the neighbourhood of Wainfleet, it is recorded that 31,200 Wild Fowl were taken in one season, of which more than two-thirds were of the present species.

The habits and colouring of this bird require no detailed account; we may, however, observe that the trachea of the male Mallard, is furnished at its inferior

part with a bony labyrinth, not unlike that of the Gad-wall, but larger.

The next example is the SUMMER DUCK, or Wood Duck of America, (*Anas sponsa*,) which has perhaps no equal for beauty among all its race.



THE SUMMER DUCK.

The Summer-Duck is extensively spread over the whole of the United States of America, and is equally common in Mexico and several of the West India Islands. Its favourite haunts are the solitary, deep, and muddy creeks, ponds, and mill-dams, in the interior of the country, the shore being rarely visited. In the northern districts it is migratory, being a summer visitor for the purpose of breeding; but in the hotter parts it appears to stay the whole of the year. “In Pennsylvania,” says Wilson, “the female usually begins to lay late in April, or early in May. Instances have been known where the nest was constructed of a few sticks laid in the fork of the branches; usually, however, the inside of a hollow tree is selected for this purpose. On the 18th of May I visited a tree, containing the nest of a Summer Duck, on the banks of Tuckahoe river, New Jersey. It was an old

grotesque white oak, whose top had been torn off by a storm. It stood on the declivity of the bank, about twenty yards from the water. In this hollow and broken top, and about six feet down on the soft decayed wood, lay thirteen eggs snugly covered with down from the breast of the bird. These eggs were of an exact oval shape, less than those of a hen, the surface exceedingly fine grained and of the highest polish, and slightly yellowish, greatly resembling old polished ivory." . . . "This tree had been occupied probably by the same pair for four successive years in breeding time; the person who gave me the information, and whose house was within twenty or thirty yards of the tree, said that he had seen the female, the spring preceding, carry down thirteen young, one by one, in less than ten minutes. She caught them in her bill by the wing or back of the neck, and landed them safely at the foot of the tree, whence she afterwards led them to the water. Under this same tree at the time I visited it, a large sloop lay on the stocks nearly finished; the deck was not more than twelve feet distant from the nest, yet, notwithstanding the presence and noise of the workmen, the Ducks would not abandon their old breeding place, but continued to pass out and in as if no person had been near. The male usually perched on an adjoining limb, and kept watch while the female was laying, and often also while she was sitting. A tame goose had chosen a hollow space at the root of the same tree to lay and hatch her young in. The Summer Duck seldom flies in flocks of more than three or four individuals together, and most commonly in pairs or singly." The food of this elegant bird consists of acorns, grain, the seeds of plants, and insects.

In captivity the Summer Duck becomes very tame and familiar; so that there is little doubt that with care it might be naturalized as a common denizen of our poultry-yards or ornamental waters.

Top of the head and pendent crest, rich glossy bronze green, ending in violet, elegantly marked with a line of pure white running from the upper mandible over the eye, and with another band of white proceeding from

behind the eye, both mingling their long pendent plumes with the green and violet ones, producing a rich effect; throat white, whence proceeds a white crescent-shaped line nearly reaching to the eye, and below this is a second line tending to the nape; back glossy brown; scapulars glossed with green; tail-coverts long and silky, and of a glossy greenish black; tail dark green; breast dark brown, with minute triangular spots of white, and bounded below the shoulders with a large crescent of white, margined by another of black; sides marked with minute undulating lines of black on a yellowish ground, besides which the large feathers nearest the wings when folded are ornamented with broad alternate semicircular bands of black and white. Rest of under surface white. Bill red, margined with black, and with a black line down the top; legs yellowish red. Length nineteen inches.

As in most of the race, the female differs very considerably from her mate, her plumage being much plainer, and chiefly coloured with drab and glossy brown, the fine pencilling of the sides being wanting.

Besides the examples alluded to, we may mention the SHIELDRAKE, (*Anas tadorna*, LIN.; *Tadorna Vulpanser*, FLAM.;) the SHOVELLER, characterized by its broad spoon-shaped bill, (*Spathulea clypeata*, HEM.;) the GADWALL, (*Chauliodus Strepera*, SWAINS;) the TEAL, (*Querquedula Crecca*, STEPH.;) and the WIGEON, (*Mareca Penelope*, SELBY;) all well known British birds, agreeing generally in habits and manners.

SECTION II.—THE DIVING DUCKS.

As in the former section, the genera into which the present is thrown are very numerous; we shall, therefore, content ourselves with a few illustrations of the section.

And first, the CANVASS-BACKED DUCK of North America (*Fuligula Valisineria*.) This celebrated species approaches very closely in form and colouring to the pochard of Europe, (*Fuligula ferina*, STEPH.) it is, how-

ever, considerably larger, and exhibits other points of difference.

The Canvass-backed Duck is unrivalled, according to the statements of those who have tasted it, in the juicy tenderness of its flesh and the delicacy of its flavour; hence it is considered indispensable at all feasts and entertainments in the United States, where the demand occasions sad havoc among the species.

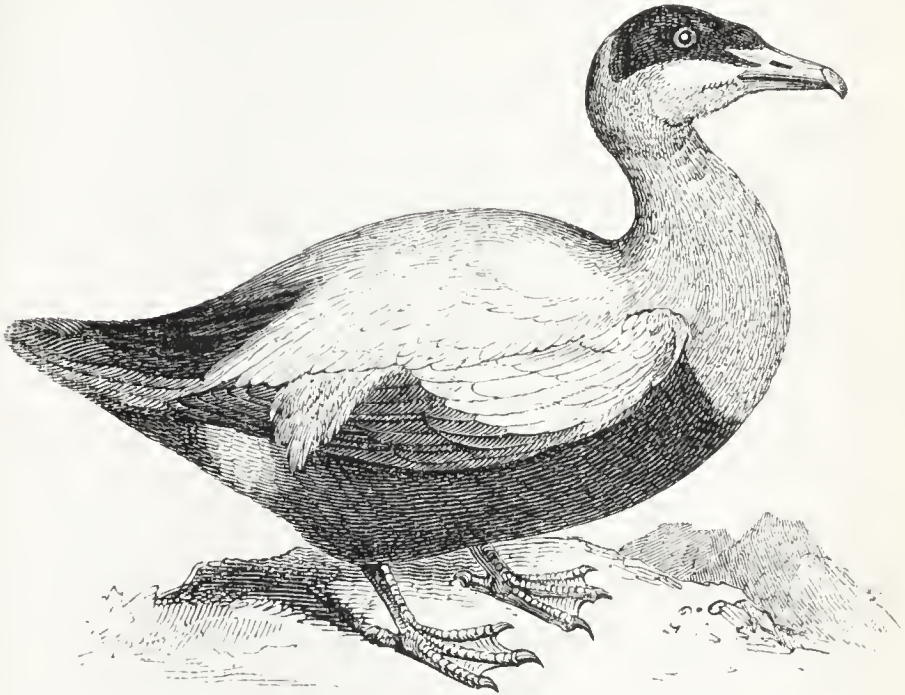
The Canvass-backed Duck “arrives in the United States from the north about the middle of October. A few descend to the Hudson and Delaware; but the great body of these birds resort to the numerous rivers belonging to and in the neighbourhood of the Chesapeake Bay, particularly the Susquehannah, the Patasco, Potowmac, and James’ rivers, which appear to be their general winter rendezvous. Beyond this to the south there is no certain accounts of them. They are seldom found at a great distance up any of these rivers, or even in the salt water bay, but in that particular part of the tide water where a certain grass-like plant grows, on the roots of which they feed. This plant, which is said to be a species of *Valisineria*, grows on fresh water shoals of from seven to nine feet, (but never where these are occasionally dry,) in long, narrow, grass-like blades of four or five feet in length; the root is white, and has some resemblance to small celery. This grass is in many places so thick that a boat can with difficulty be rowed through it. The shores are lined with large quantities of it, torn up by the Ducks, and drifted up by the winds, lying like hay in wind-rows. Wherever this plant grows in abundance, there the Canvass-backs may be expected either to pay occasional visits, or make it their regular residence during the winter; while in waters unprovided with this nutritive plant they are altogether unknown. On the first arrival of these birds in the Susquehannah, near Havre de Grace, they are generally lean; but such is the abundance of their favourite food, that towards the beginning of November they are in pretty good order. They are excellent divers, and swim with great speed and agility. They sometimes assemble in such multitudes as

to cover several acres of the river, and when they rise suddenly, produce a noise resembling thunder. They float about these shoals, diving and tearing up the grass by the roots, which is the only part they eat. They are extremely shy, and can rarely be approached, unless by stratagem. When only wounded in the wing, they dive to such prodigious distances, and with such rapidity, continuing it so perseveringly and with such cunning and active vigour as almost always to render the pursuit hopeless. From the great demand for these Ducks, and the high prices they uniformly bring in the market, various modes are practised to get within gun-shot of them." The most successful is by enticing them towards the shore by means of a dog, which is taught to play about, so as to attract their curiosity; when, on their approaching within due distance, the gunner, concealed in ambush, pours a destructive fire among them. The breeding places of this species are in the high northern latitudes, whither it returns on the opening of the spring.

The neck of the Canvass-back is of a rich chestnut, merging into black on the back and breast, when it terminates abruptly; the back is white, beautifully pencilled with fine transverse wavy lines of dusky black; breast and under surface white, pencilled like the back, but more obscurely; quill-feathers pale slate, becoming dusky toward the tips; tail very short, and of a grayish brown; bill very stout at the base, and glossy black; legs pale ash. Length two feet. The trachea of the male is furnished with a large flattish labyrinth. The female is more dull in her plumage, and obscure in all the markings.

Our next example is a Duck even more celebrated than the Canvass-back; it is the EIDER DUCK, (*Somateria mollissima*, LEACH.) Few of our readers are unacquainted with the name of this water-fowl, which produces the celebrated down, exceeding that of every other bird in its fineness, lightness, and elasticity. The Eider Duck is truly oceanic in its habitat, never being found in rivers or fresh water lakes. On the land it is sluggish

and inactive, walking with great awkwardness, but on its congenial element it is active and alert, swimming and diving with spirit and rapidity. Its native habitation is the Arctic Sea; hence it is found in great abundance along



THE EIDER-DUCK.

the shores of Iceland, Greenland, Lapland, Spitzbergen, and those of Baffin's and Hudson's Bays. Its native name among the Esquimaux is *Mittek*. On the coasts of England it is seldom seen, and then only in consequence of having been driven by stress of weather into our latitudes. In Scotland it is of more common occurrence, and is indeed abundant in the Hebrides and northern isles, where it annually breeds. One of the numerous tribes whose labours man turns to his own benefit, the Eider Duck is a welcome guest upon the shores of the northern world, where the inhabitants take every means to protect and encourage it. The Greenlanders, it is true, chase it for the sake both of its flesh and skin; the former of which, though rank, is valued by them as food; the latter is made up into articles of clothing of singular warmth and comfort. Their mode of taking the Eider

Duck is by hunting it in their boats, with darts, with which they strike the bird as it rises fatigued to the surface, after long and repeated diving, in order to escape pursuit. These people, however, may be considered as an exception to the general rule, since other nations, selfish though the motives be, are anxious to promote the breed; for it is from its nest that the finest down is obtained, and the more numerous these nests the greater the spoil. This beautiful species is of recluse habits, disliking interruption, though it is not particularly timid; hence it chooses for its breeding place low flat islands along the coast, in preference to the main land; and these islands are tacitly given up to it as its peculiar territory. Here, then, numbers assemble during the summer months, for the purpose of incubation. The nest is placed on the ground, and constructed of marine plants, thickly lined with soft down, which the female plucks from her own breast, and disposes around her so as to form an elevated ridge, which falls in and covers the eggs the moment she leaves them. As long as the female is sitting, the male continues out at sea, and returns in the evening to his mate, whom it is not improbable he relieves during the night. The downy lining of the nest, which is so much prized, is thus secured; as soon as the nests are made, and a number of eggs deposited in them, the collectors go round, and carefully remove the female, who seems so absorbed in her duty as to lose all sense of danger; they then take away the down and superfluous eggs, and after this replace her; she then reconstructs her nest, and lays afresh, when a second robbery takes place, and a third time does she proceed to the task with untired patience, assisted by the male, who is now obliged to furnish the greater part of the down himself. If the unjust robbery be again repeated, the birds generally leave the place: it is therefore usual to permit them to proceed with the task of incubation. The quantity of down thus obtained from a single female is said to amount to half a pound, which is reduced to half by the process of cleaning. “This down,” says Shaw, “is of such value, that, when in its purity, it is sold in Lapland for two rix-

dollars a pound: it is extremely soft and warm, and so light and expansive that a couple of handfuls squeezed together is sufficient to fill a quilt five feet square. There are generally exported from Iceland every year, by the Iceland company at Copenhagen, fifteen hundred or two thousand pounds weight of this down, cleaned and uncleaned, exclusively of what is privately exported by foreigners. In the year 1750, this company sold as much in quantity of this article as produced three thousand seven hundred and forty-seven rix-dollars, besides what was sent directly to Gluckstadt." It is in the northern nations of Europe that this article is in most demand.

The males and females of the Eider differ remarkably in plumage. In the male, on each side of the head and above the eyes, there extends a very large band of black feathers; the sides of the throat and back of the neck are of a delicate sea-green; the neck is white, having a tinge of yellow, which becomes a decided buff colour over the breast; back and shoulders white; quill-feathers, tail, and under parts deep black. The female has the plumage universally of a brownish red, barred transversely with black. Length twenty-six inches. Our engraving on p. 529 represents a male of this elegant species.

Closely allied to the eider, in habits and manners, and producing down equally valuable with that of the eider, and collected indiscriminately with it, we may notice the KING DUCK (*Somateria spectabilis*.) It inhabits the shores of the northern regions, and associates with the eider, breeding in the same localities. The females of the two species resemble each other so nearly as to be distinguished with difficulty. The males, however, differ in their plumage.

The beak has two lateral cartilaginous projections, which rise from the base, and inclose the forehead nearly as far as the eye. The colour of the beak and legs rich vermilion; a narrow belt of black velvety feathers borders the upper mandible, and on the throat is a figure like an arrow head, or V, of black; top of the head fine bluish

gray ; cheeks sea-green ; neck white, passing into salmon colour on the chest ; back and lesser wing-coverts white ; rest of the plumage dull black. We present a sketch of the head of this beautiful bird.

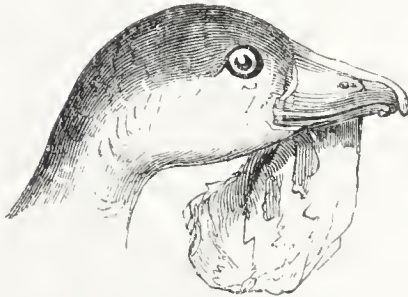


HEAD OF THE KING DUCK.

Among the Ducks of the present section we may mention the Black Scotea of the northern seas, (*Oidemia nigra* ;) the Golden Eye, (*Clangula vulgaris* ;) and the Long-tailed Duck, (*Harelda glacialis* ;) all widely spread, and visitants to our shores.

The last to be noticed here is a remarkable species from the shores of New Holland, which in general form and habits approximates to the cormorants, constituting a point of union between that group and the Ducks. The bird to which we allude is commonly termed the NEW HOLLAND MUSK DUCK, (*Hydrobates lobatus*,) remarkable for the extreme backward position of the limbs, which, while it renders progress on land slow and embarrassed, gives additional facility in cleaving the liquid element ; this species is no less singular for the smallness of the wings and the shape of the tail and texture of the feathers composing it. The tail consists of twenty-two stiff narrow feathers, with firm elastic shafts, those of the centre being the longest, the others decreasing gradually to the external ones, which are very short ; the tail has thus a wedge-like form, and is used as a rudder. The plumage, thick and close, is externally smooth and glossy, as if varnished, so as to be impenetrable by water. Flight

is most probably a laborious effort ; but flight, as well as the facility of walking, are minor considerations to a bird whose home is the sea or the lake, the depths of which are open to it for refuge. This rare bird is found in various parts of the coast of New Holland and the adjacent islands, and also in the larger rivers and inland lakes. Peron informs us that it dives continually in pursuit of its finny prey, and that in swimming the whole of the body is submerged, the head alone being visible : it is wild and shy, and disappears instantaneously from the view of the pursuer, remaining long under water, and emerging at a great distance. The beak is short and strong, and furnished, in the male, with a large leathery membrane or wattle, depending from the lower mandible,



HEAD OF THE NEW HOLLAND MUSK DUCK.

producing a strange aspect. The plumage is black and irregularly barred with narrow transverse and somewhat obscure lines of white ; the under surface being of a grayer tint.

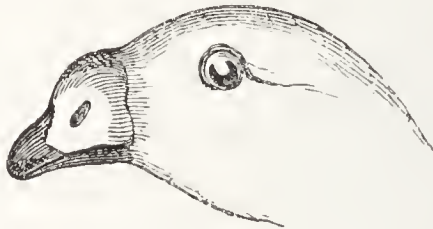
From the ducks we pass to the Geese, (*Anser*,) characterized by the bill being short, straight, and conical, furnished with a nail at the tip, and laminated serrations along the edges ; the wings ample ; the legs placed under the centre of the body ; the toes three before, with webs, and one behind, free.

From the central position of their legs, and the length of their tarsi, the Geese walk readily on the land, where they obtain their food even more habitually than on the water. They graze the common, nipping off the tender blades of the grass with their bill ; they greedily devour

grain, and relish vegetables generally. They swim, however, with great ease and buoyancy, but never dive, except in cases of emergency. Their flight is strong and rapid, and their migrations (for all or most are migratory) are performed at the rate of fifty or sixty miles in an hour. The flesh of many species is highly esteemed.

The first of this tribe to which we call the attention of our readers is one which seems to display a considerable affinity to the wading birds, and indeed may be regarded as a link of connexion between them and the Geese. The legs are naked above the joint, and elongated, while the toes are only partially webbed; the beak is short and thick, with a swollen base, covered by the cere, in the middle of which the nostrils are placed. The number of tail-feathers is sixteen, while in the rest of the tribe it is only twelve.

These circumstances have led to the establishment of a new genus for its reception, of which it forms the only known species. The genus is termed *Cereopsis*; the annexed sketch exhibits the characters of the bill.



HEAD OF THE CEREOPSIS.

THE NEW HOLLAND CEREOPSIS, (*Cereopsis Novæ Hollandiæ*, LATH.) This remarkable bird is a native of New Holland, on several parts of the coast of which it is very abundant; it does not, however, visit the interior, as far as we know at present, but is confined to the borders of the sea, and especially the small islands adjacent to the main land. Under the title of *Cygne cendré*, it was noticed by M. Vieillot, in the *Nouveau Dictionnaire d'Histoire Naturelle*, in 1803, in conformity with a description given by M. Labillardière, in his account of the

voyage of D'Entrecasteaux, which took place in 1792, and who found it in Espérance Bay, on the coast of New Holland.

The Cereopsis, as far as we are acquainted with its native manners, is by no means so shy as our European wild geese, a circumstance depending most probably on the little disturbance it has hitherto met with in its secluded haunts. “Labillardière tells us, that many of those first seen by him, suffered themselves to be taken by the hand; but the rest, becoming apprized of their danger, speedily took to flight. Considerable numbers were taken by the crew of Captain Flinders' vessel, both at Lucky Bay, and Goose Island, by knocking them down with sticks, and some of them were secured alive. According to M. Bailly, those seen by him at Preservation Island evinced so little shyness, and suffered themselves to be approached so readily, that his boat's crew were enabled to procure, without any trouble, a sufficient quantity to victual them during their stay. The flesh of these Geese, as they are called, is described by Bass as being excellent; D'Entrecasteaux considered it much more delicate than that of the European goose, and Flinders adds, that on Preservation Island, it formed the best repasts of his men.” See “Gardens Delineated.” It breeds and takes up its abode amongst the grass and herbage on the shore, feeds upon vegetables, and but rarely takes to the water. Its voice is a short, deep, clanging tone. They appear to bear our climate with perfect ease, and are tame and very familiar. There is no doubt that, with care, they might become not only naturalized, but even abundant additions to our stock of farm-yard denizens.

What, it may be here asked, is the origin of our domestic goose? The origin of that well-known and valuable bird, which has been so long reclaimed from its state of primitive independence, is the GRAY LAG WILD GOOSE, (*Anser palustris*, FLEM. *Anser ferus*, GM.) which though at present of comparatively rare occurrence in our island, was formerly a permanent resident, breeding

in great numbers in the fens of Lincolnshire, and the adjoining counties. The draining and cultivation of marshy tracts, once untenanted save by birds whose habits led them to seek the dank morass, has almost banished this noble species from its ancient haunts. It is, however, abundant throughout the eastern portions of Europe, and the adjacent parts of Asia; but it seldom advances beyond the fifty-third degree of north latitude. It is also met with along the northern districts of Africa. The Gray Lag, whatever it might have been in our island, is certainly migratory on the continent, passing northwards and southwards according to the season, in flocks, often containing five hundred individuals; the flight is usually performed at a great elevation in the air, and the figure assumed by the flock mostly describes two sides of an acute angle, or the letter V, the leader occupying the point. The office of leader, however, is taken by turns, the foremost, when fatigued, retiring to the rear of one of the lines, so as to allow the next in station to assume the lead.

Few birds are more shy and wary than the Gray Lag Goose: while the flock is feeding in the marshes, or among the rising wheat, the tender blades of which are an enticing luxury, sentinels are posted around to give notice of the approach of danger, and on the slightest alarm, they utter the note of warning, upon which the whole flock rise with incredible alertness, and soar away in their usual figure. Even at night, while reposing among the long reeds and luxuriant vegetation of the morass, they maintain the same watchfulness and care. Their breeding places are among the wildest marshes; the eggs are six or eight in number, and of a dull greenish white. The general plumage is brownish gray above, and grayish white below; the feathers having paler margins; the upper and under tail-coverts are pure white; bill orange red; feet tile red; length two feet ten inches.

The most common Wild Goose in our island, as well as in the temperate regions of Europe, generally is the

BEAN GOOSE, or Common Wild Goose, (*Anser ferus*, FLEM. *Anser segetum*, STEPH. &c.)

The Bean Goose closely resembles the gray lag, in colour and general appearance, and is indeed often confounded with it. It may, however, be distinguished by its shorter and more compressed bill, the basal portion of which is black, and the remainder flesh red, except the nail at the tip, which is also black. In general size, the Bean Goose is rather the smallest, measuring about two feet six or seven inches. It is a regular winter visitant to the fens and marshes of Great Britain, whence, during the day, it spreads itself in flocks over the upland fields, where the tender blades of wheat are shooting above the ground, and returns to its haunts at night for the purpose of repose. Selby observes, that the flocks of wild geese, which frequent the fields along the coast by day, retire at night, "to some ridge or bar of sand on the sea-coast, sufficiently distant from the mainland to afford a secure retreat; and where the approach of an enemy must become visible or at least audible to their acute organs before it could endanger their safety."

Another winter visitor to our island is the WHITE-FRONTED GOOSE, (*Anser erythropus*,) which is most common in the southern districts. This species is very widely distributed, its geographical range including Europe, northern Asia, and northern America. In summer it retires within the arctic circle, and in those dreary realms, where so many of the wild-fowl find an undisturbed asylum, in haunts where the foot of man never trod, it rears its brood in safety.

The BERNICLE GOOSE, (*Anser Bernicla*,) and a very closely allied species, the BRENT GOOSE, (*Anser Brenta*,) are also winter visitants from the arctic regions to our shores; their food consists of marine vegetables, such as Laver (*Ulva latissima*) and various grasses covered and left dry by the flow and ebb of the tides. Wariness and caution are as characteristic of these birds as of the rest of their congeners.

We shall conclude our sketch of the Geese, by the notice of a species, which, though foreign to Europe, has been recently domesticated, and is tolerably common in this country, forming an ornament to our ponds and lakes. We allude to the CANADA GOOSE, (*Anser Canadensis*.)

This bird is abundant over the whole of the northern portion of America, pouring down in flocks from the arctic regions on the approach of winter, where, as the author of American Ornithology observes, they have been rearing their young “under the very pole itself, amid the silent desolation of unknown countries, shut out since creation from the prying eye of man by everlasting and insuperable barriers of ice. That such places abound with their suitable food, we cannot for a moment doubt, while the absence of their great destroyer, man, and the splendours of a perpetual day may render such regions the most suitable for their purpose.”

Their first arrival on the coast, New Jersey, is early in October, and their appearance is the indication of the approach of a rigorous season; they frequent shallow bays and marshy islands, and occasionally make excursions to the inlets on the beach for gravel. “They cross indiscriminately over land or water, generally taking the nearest course to their object; differing in this respect from the Brent, which will often go a great way round by water rather than cross over the land. They swim well, and if winged, dive, and go a great way under water. Except in very calm weather, they rarely sleep on the water, but roost all night in the marshes.”

In America, this Goose is very common in a state of domestication, and is remarked for being extremely watchful, and more sensible of approaching changes in the atmosphere than the European Gray Goose. It is very easily reclaimed, and wounded birds may be soon made familiar, though, as the following account proves, they do not altogether lose their native instincts. “Mr. Platt, a respectable farmer on Long Island, being out shooting in one of the bays which in that part of the country abound with water-fowl, wounded a Wild Goose. Being

wing-tipped, and unable to fly, he caught it and brought it home alive. It proved to be a female; and turning it into the yard with a flock of tame geese it soon became quite tame and familiar, and in a little time its wounded wing entirely healed. In the following spring, when the Wild Geese migrate to the northward, a flock passed over Mr. Platt's barn-yard, and just at that moment, their leader happening to sound his bugle note, our Goose, in whom its new habits and enjoyments had not quite extinguished the love of liberty, remembering the well-known sound, spread its wings, mounted into the air, joined the travellers, and soon disappeared. In the succeeding autumn the Wild Geese, as was usual, returned from the northward in great numbers, to pass the winter in our bays and rivers. Mr. Platt happened to be standing in his yard, when a flock passed directly over his barn. At that instant he observed three Geese detach themselves from the rest, and after wheeling round several times, alight in the middle of the yard. Imagine his surprise and pleasure when, by certain well-remembered signs, he recognised in one of the three his long lost fugitive. It was she indeed! She had travelled many hundreds of miles to the lakes; had there hatched and reared her offspring; and had now returned with her little family, to share with them the sweets of civilized life."... And it is added, that the "birds were all living in his possession about a year ago, and had shown no disposition whatever to leave him."—Wilson's American Ornithology. The Canada Goose is three feet in length; bill black; upper half of the neck black, marked on the throat and lower part of the head with a large transverse patch of white; front of the lower part of the neck white; back and wing-coverts brown, each feather having a margin of whitish; quill-feathers and tail black; tail-coverts white; sides pale brown; legs and feet dusky, or lead coloured.

Among our acquisitions from the present tribe, by which we add to our domestic dependents, is the CHINESE GOOSE, (*Anser cygnoides*,) originally brought from China and other parts of Asia, as well as from Africa.

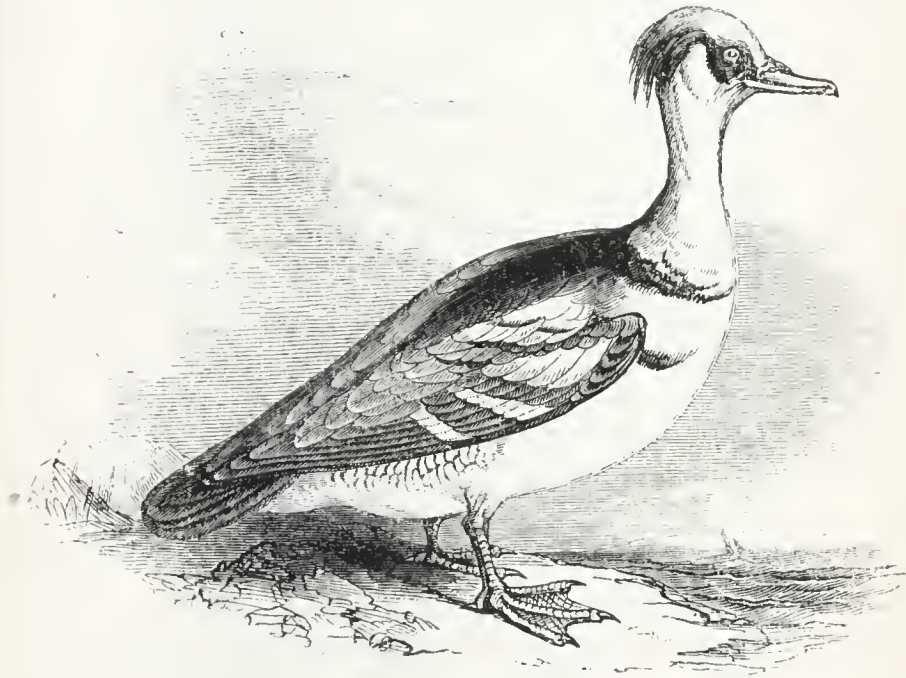
It is common as an ornament to ponds and lakes, and intermixes with the ordinary gray goose. It requires no description.

The last group of which the Family *Anatidæ* is composed, is that of the *Mergansers*, (*Mergus*.) The Mergansers differ from the Ducks or Geese, in having the bill long, narrow, almost cylindrical; high at the base and tapering to the point, which is armed with a strong hooked nail; the edges of both mandibles are toothed, or serrated like a saw, the serrations directed backwards. The nostrils are placed near the middle of the bill, and are oblong slits in a membranous expansion; wings moderate and pointed; legs placed far backwards; feet large, the three toes before being united by webs, and that behind being furnished with a large lobated membrane.

The sharp conical serrations of the bill, and the position and form of the feet declare the habits of the Mergansers. They are aquatic birds, and their food consists chiefly of fish, which they seize while diving, an art in which they excel; not only proceeding in their submarine evolutions with great rapidity, but to astonishing distances. While swimming, they appear as if deeply immersed in the water, owing to the remarkable flatness of the body. Their flight is strong and swift, and of great endurance; but their actions on land are awkward and slow. Natives of the colder latitudes, they are all migratory, visiting milder regions, where they frequent the coasts and mouths of rivers, as well as the lakes and marshes of the interior, during winter; but returning on the approach of spring to the more congenial wilds of the north, where man seldom intrudes upon their haunts. Shy and wary, and impatient of confinement, they are incapable of being domesticated, and even if they were so, they would be useless to men, their flesh being unfit for food. Their yearly moult is double, and the young birds of both sexes resemble the adult female in plumage, which is very different in style and colour from the rich and varied tints which decorate the male. As all the species agree closely in general habits and manners, we shall content ourselves with the description of a single

species, premising that four species visit our shores, and those of the adjacent continent. One of these, however, the Hooded Merganser (*Mergus cucullatus*) is truly a native of the higher latitudes of North America, one or two instances only of its capture on our shore being upon record. The other three species are the Goosander, (*Mergus Merganser*,) the Red-breasted Merganser, (*Mergus Serrator*,) and the Smew, or White Nun, (*Mergus albellus*.)

The engraving which we present to our readers is that of the Smew, a species distinguished by the purity of its colouring, which consists of black, tastefully disposed on a



THE SMEW.

snowy white ground. It is by far the smallest of the European Mergansers. The largest is the Goosander, (*Mergus Merganser*.) This fine bird is a native of the arctic regions of the Old World, as well as of America, where it breeds among the loose stones which border the water, or among tufts of grass, or under the cover of bushes, or in the hollows of decayed trees. The nest is constructed of dried vegetables, such as grasses, roots,

&c. and lined with down. The eggs are twelve or fourteen in number, and of a cream-yellow colour. In Iceland and Greenland, Siberia and Kamschatka, and the fur countries of America, it is a summer guest, rearing its young in regions where it fears no molestation, and where thousands of other aquatic birds are all busy in the great task of bringing up their broods; their only enemies being the fox, the sable, or the ermine, or some wandering bird of prey. When winter sets in, the Goosander migrates southwards, but seldom makes its appearance in the southern parts of England, unless in winters of long and great severity; it spreads itself however far to the south, along the shores of the continent, visiting Holland, Germany, and France. In the Orkneys and other Scottish islands it is said to be a permanent resident, “finding subsistence throughout the year either in the fresh water lakes of the interior, or when these are frozen, in the deep indentations of the coast formed by the saline lochs so numerous in that part of the kingdom.” Except when on the wing, the Goosander is seldom seen unless on the water, where it is all life and activity, diving and swimming with surprising ease and alertness. Its food consists of fish and aquatic reptiles, which it seizes and holds securely in its serrated bill; hence its flesh is rank and oily.

By earlier writers the young and females were looked upon as distinct species, and described under the title of *Mergus Castor*, a mistake now corrected.

The plumage of the adult male is as follows:—head and upper part of the neck black, with glossy green reflexions; lower part of the neck, breast, and under parts, together with the wing-coverts, white, with a delicate tinge of yellowish rose, or salmon colour, especially prevailing on the chest and under parts; top of the back, inner scapularies, primary quill-feathers, and narrow margins of the elongated greater wing-coverts, velvet black; lower part of back and tail deep brownish gray; the feathers of the crown and back of the head are elongated into a full silky crest; beak black above and below, and vermilion at the sides; legs and feet vermilion; length

twenty-eight inches. In the female the crest is long and slender, the head and upper part of the neck are reddish brown; the throat white; the lower part of the neck, the breast, the flanks, and thighs grayish white; under surface yellowish white; all the upper parts are deep bluish gray, tinged with brown, a white belt occupying the middle of the wing; beak black above and below, passing into dull red at the sides; the legs and feet orange; length twenty-five inches.

The trachea of the male is very long, and presents two dilatations in its course before its entrance into a large irregular labyrinth. See page 521.

Thus may be closed the present sketch of the Anatidæ; an interesting and important group, whose forms, habits, and manners strongly display the overruling hand of God. He guides them in their migrations, and leads them from the pole to the south, and back again to their lonely haunts, where the voice of man never mingles with the tones and cries of myriads of busy creatures, all intent upon the rearing of their broods. He teaches them their course, and appoints the bounds of their habitation. But oh! if the fowls of the air are thus provided for, and carefully guided aright, may not we, with His express promises in our favour, trust ourselves and our cares to Him, whose mercy endureth for ever. The following exquisite lines by Mr. Bryant, an American poet, are so much to the purpose that they need no excuse for their insertion.

TO A WATERFOWL.

WHITHER 'midst falling dew,
While glow the heavens with the last steps of day,
Far through their rosy depths dost thou pursue
Thy solitary way?
Vainly the fowler's eye
Might mark thy distant flight to do thee wrong,
As darkly painted on the crimson sky
Thy figure floats along.
Seek'st thou thy plashy brink
Of weedy lake, or marge of river wide,
Or where the rocking billows rise and sink
On the chafed ocean-side?

There is a Power, whose care
Teaches thy way along that trackless coast—
The desert and illimitable air,
Lone wandering, but not lost.

All day thy wings have fanned
At that far height, the cold thin atmosphere,
Yet stoop not weary, to the welcome land,
Though the dark night is near.

And soon that toil shall end,
Soon shalt thou find a summer home, and rest,
And scream among thy fellows: reeds shall bend
Soon o'er thy sheltered nest.

Thou'rt gone! the abyss of heaven
Hath swallowed up thy form; yet on my heart
Deeply hath sunk the lesson thou hast given,
And shall not soon depart.

He, who from zone to zone,
Guides through the boundless sky thy certain flight,
In the long way that I must tread alone,
Will lead my steps aright.

The next family is that termed *Colymbidæ*, which includes the Grebes and Divers.

The *Colymbidæ* display a fitness and adaptation to aquatic habits, even more strongly than the diving ducks, or the mergansers, having those characteristics, on which such habits depend, displayed in a still greater degree. The body is flat, and covered with close glossy plumage; the wings are small and concave; the tarsi are flat, so as to cut the water; and the toes, which are lobated in one genus, (that is, each furnished with a strong lateral expansion, so as to form an oar,) and webbed in another, are so arranged as to fold into a very small compass when drawn towards the body after making one stroke before the next is given, so as to offer the least possible resistance to the water.

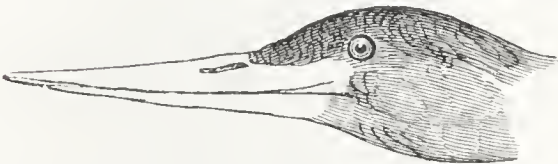
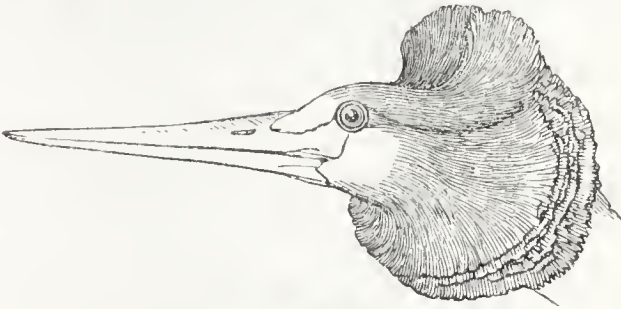
In diving, the wings are used for the purpose of aiding progression. The bill is long and sharp, and the neck elongated. Necessarily embarrassed on land, the *Colymbidæ* are active and vigorous on their congenial element, which they seldom leave, except in order to change their abode; they rise on the wing with difficulty, till at length,

having attained to a certain elevation, their flight becomes strong and rapid. When pursued, they trust to their skill in diving for safety; and so rapidly do they dip beneath the water, that it is difficult to hit them with shot, unless when taken by surprise.

The first group of this family is that of the Grebes, (*Podiceps*.)

The Grebes swim with equal facility either on the surface or beneath the surface of the water; in the latter case they use their wings as if flying in the liquid element. Their food consists of fishes, insects, and aquatic reptiles; but the stomach, upon dissection, is usually found to contain a mass of feathers, which it would appear the bird had taken from its own plumage. Whether these feathers are swallowed accidentally while the bird is dressing its plumage, or purposely to aid the process of digestion, is not satisfactorily made out; many circumstances, however, tend to favour the latter opinion.

HEAD OF THE CRESTED GREBE—SUMMER PLUMAGE.



WINTER PLUMAGE.

The Grebes are more habitually the inhabitants of fresh waters than of the sea; they make their nest amidst reeds and aquatic herbage, which abound in their favourite localities. Their plumage is silky, close, thick, and

glossy; the tail is altogether wanting. The young are two or three years old before they assume the adult plumage, a circumstance that has led to the erroneous multiplication of species. During the breeding season, not a few of the Grebes have the head ornamented with beautiful tufts, or frills of silky feathers, which produce a very elegant appearance; these they lose in the autumn: the Horned Grebe, the Crested Grebe, the Eared Grebe, &c. take their distinctive names from the character and position of these plumes. The preceding sketches of the head of the Crested Grebe, in the ornamented plumage of summer, and the plain dress of winter, will illustrate our meaning.

The generic characters consist in the bill being straight, compressed, and elongated into a sharp point; the nostrils oblong; the tarsi placed far backward, and very compressed; the feet consisting of three toes before, which are lobated, the external being the longest, and of



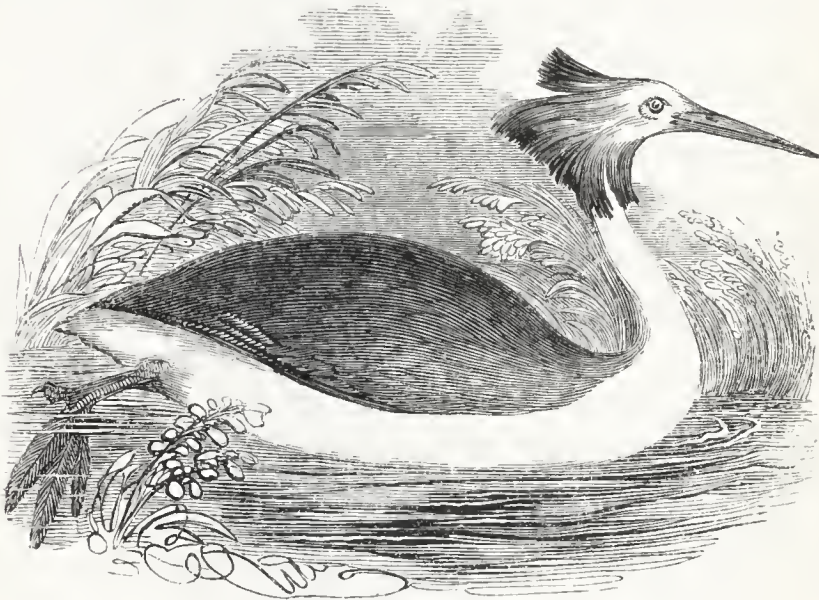
THE GREBE'S FOOT.

a hind toe, small, and also lobated. These characters of the feet will be made intelligible by the above sketch.

The tail is absolutely wanting; the wings are short and concave.

The geographical range of the present genus is very extensive, some species being found in every quarter of the globe. In habits all are strikingly identical.

The CRESTED GREBE (*Podiceps cristatus*) is one of the largest of the genus; it is indigenous in the British



THE CRESTED GREBE.

islands and the temperate parts of Europe. It breeds annually in the fens and meres of Shropshire and Cheshire, whence it retires in winter to the mouths of rivers and inlets of the sea, where it can obtain a supply of food, when the lakes and marshes are locked up with frost. Its quickness in diving is very extraordinary, for it is able to avoid the shot from a fowlingpiece, if not fired by a percussion lock. Nor less so is its rapidity beneath the water, where it will sometimes make two hundred yards at a single stretch, before rising to breathe, and then only just raise the bill above the surface, so as to take in the necessary supply of air. Mr. Selby states, that when making a tour in Holland with Sir W. Jardine, he gave chase to a bird of this species upon the lakes in the neighbourhood of Rotterdam; and that, though in a boat

conducted by those accustomed to the business, it cost them upwards of an hour and a half's severe exertion to get within range and secure it by a shot through the neck.

The Crested Grebe is not confined to Europe, it is found in America also, and is mentioned in the Fauna Boreali-Americana as having been killed by Dr. Richardson upon the Saskatchewan.

This beautiful species builds a floating nest of vegetables, such as flags, grasses, &c. amidst reeds and similar herbage. The eggs are three or four in number, and of a greenish white.

The colour of the adult, in full plumage, is as follows :—Crown of the head and long occipital tufts, as well as the edges of the neck-frill, glossy grayish black ; upper part of the neck-frill, pale chestnut ; fore part of the neck and under parts, lustrous silvery white ; upper surface, deep, glossy, blackish brown, with a white band on the wings ; bill, dull red at the base ; legs, lead colour on the outer side, and on the inside pale yellow.

The young, which was formerly called the *Tippet Grebe*, from the use to which the silky feathers of the under parts were often applied, has the cheeks and throat white, without any tufts or frill.

The most common Grebe in our island is that elegant tenant of our pools and marshes well known as the DAB-CHICK ; it is the LITTLE GREBE of authors, (*Podiceps minor*.) In the southern parts of England it is especially abundant ; few ponds, the borders of which are thickly covered with beds of reeds, (which afford concealment and a quiet place of nidification,) being without two or three pairs. In their actions and habits they resemble their congeners. Their food consists of aquatic insects and small fishes, in pursuit of which they dive with great celerity. In winter, when the inland waters are frozen, they betake themselves to the mouths of rivers, and to bays and creeks of the sea, where they remain till the weather opens. The nest is usually a floating mass of herbage among the reeds, and often, it is said, on masses of the decayed herbage of the former year ; the eggs are

five or six in number, and of a greenish white. When in full plumage, the head, chin, and throat are glossy greenish black; the ear-coverts, sides, and front of the neck, rich chestnut; breast, silvery gray; the flanks are dashed with chestnut; the remainder of the under surface, silvery white; the upper plumage is glossy brownish black, with a white mark on each of the wings. The black head and throat, the chestnut sides of the neck, are characteristic of the summer plumage of the adult. Length, ten inches; the beak is shorter in proportion than in most others of the genus, and is strong and much compressed.

The Divers (*Colymbus*) closely resemble the grebes in their aquatic habits; they are even more awkward, if possible, on the land; their congenial abode is the ocean, over whose expanse they migrate not on wing, but by means of their powers of swimming; for though their flight is rapid when they have attained a certain elevation, they rise with difficulty.

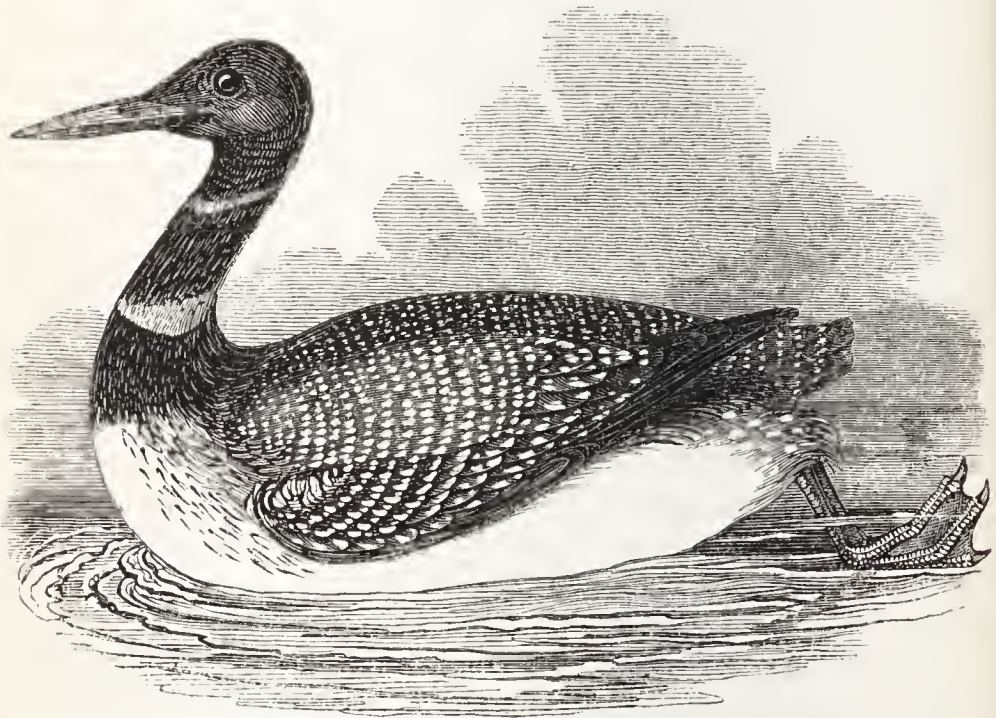
The Divers inhabit the arctic seas of both worlds, migrating towards the higher latitudes for the purpose of breeding; at such times they leave the sea and retire to fresh water lakes in the interior, where they construct their nest close to the water's edge. On the approach of winter, they again repair to the ocean, and gradually return to their winter haunts. In swimming, the whole of the body is immersed in the water, the head and neck only appearing above the surface; they dive with astonishing vigour, and to a great distance, the wings being used as organs of progression under such circumstance. Fish and aquatic insects form their principal subsistence. They lay but two eggs, and the young do not assume the adult plumage till after the third moult. In their habits the Divers are wild and shy in the extreme, and their notes or screams are loud and melancholy, and well accord with the roar of the wide waste of the Northern Ocean, where they find their home.

Three species are all as yet discovered. They are spread throughout the arctic regions of the northern hemisphere, and only occur accidentally in southern

latitudes. The generic characters are as follow:—Bill, of moderate length, strong, straight, pointed, and compressed; nostril, basal and oblong; legs, placed far behind, the tarsi being compressed; the toes are three before and one behind, the outer toe exceeding the rest in length; the toes before are entirely webbed, the one behind is furnished with a lobe and partly connected with the exterior membrane of the inner toe; nails, flat; tail, merely rudimentary; general plumage, close, thick, and glossy.

The three species known are the Northern Diver, the Black-throated Diver, and the Red-throated Diver; but the young or immature birds of each species have been mistaken as distinct, a circumstance which has led to no little confusion, and a multiplication of names.

The GREAT NORTHERN DIVER, LOON, or IMBER,



THE GREAT NORTHERN DIVER.

(*Colymbus glacialis*,) is widely distributed over the arctic regions of Europe, Asia, and America. Dr. Rich-

ardson describes it as very abundant on the lakes of the fur countries, and Temminck informs us that it is very common in Norway, Sweden, and Russia. It is, however, a remarkable circumstance, that while the adult birds are very rare upon the northern coasts of our island, the immature, in various stages of their plumage, are regular and abundant winter visitors to the bays and friths of Scotland and the neighbouring shores of England. The Frith of Forth is a favourite resort, in consequence of the shoals of herrings which there reside, and upon which the Divers make a luxurious repast: the herring, indeed, is their favourite food. The lakes of the interior, in the polar regions, are the summer resorts of this singular bird; and upon the shores of these lakes, and on the islets, they form their nests and rear their young.

The Northern Diver rarely flies, as it rises with difficulty; its flight, however, when it has fairly taken wing, is rapid, and Dr. Richardson observed that it flew in circles around those who intruded upon its breeding haunts. Its powers of swimming and diving are very great; indeed, it appears to pass the major part of its time beneath the surface of the water, either in pursuit of its food, or in order to escape observation. On diving, it generally proceeds for a hundred and fifty yards at a stretch without rising to breathe, and this act it accomplishes by raising its bill above the surface for an instant, when it again disappears. As in the genus *Podiceps*, the backward position of the legs, in connexion with the remarkable shortness of the thigh-bone, which stands at a right angle with the body, so as to give an outward direction to the feet, in order to render them more efficient as organs of aquatic progression, reduces the Divers, when on land, to a most embarrassed mode of pushing themselves along; this they do by resting the breast on the ground, which they strike at the same time with their feet.

The flesh of the Northern Diver, like that of the others of the genus, is rank and coarse; the Divers are, however, often killed for the sake of their skin, which is very tough, and when dressed with the feathers on it, forms

articles of clothing much valued by the rude natives of the northern countries. The skin of the Black-throated Diver, in particular, is much valued by the Esquimaux and Indians for its warmth and beauty.

The Northern Diver, when in adult plumage, is a most beautiful bird ; its colours being arranged so as to produce a striking effect. The head and neck are jet black, with a broad collar of striated black and white, nearly encircling the lower part of the neck, being broadest at the back part, and narrowing as it proceeds to the front ; a slender line of a similar mixture of white and black runs across the throat ; the whole of the upper plumage is glossy black, thickly dotted with square marks of white, disposed in regular rows ; sides of the chest, striated with longitudinal lines of black ; under surface, pure white ; tail, short and rounded, and consisting of twenty feathers ; bill, black ; legs, dull black ; length, thirty inches. In the young of the first year the head and upper plumage generally is grayish brown and the under plumage white ; after the second moult, a dark band appears along the neck, and the upper plumage begins to assume indications of the adult character, which is still more developed at the third moult, and is perfected after the fourth.

The BLACK-THROATED DIVER (*Colymbus arcticus*) is rarer than the preceding, confining itself more strictly to the polar latitudes. It is common in Hudson's Bay, but seldom visits the lakes in the interior of North America. Selby states that he suspects that instances occur of its breeding in Scotland, as he saw a pair upon Loch Awe towards the end of June, but did not succeed in detecting their place of nidification.

The commonest and most widely diffused of the genus is the RED-THROATED DIVER, (*Colymbus septentrionalis*.) In winter it visits the coasts of England, Holland, and France ; and the young are common at that season on the inland lakes of Holland, Germany, and even Switzerland. In the Thames it feeds much upon sprats, whence the fishermen call it the "*Sprat-loon* ;"

but herrings and other fishes are also eagerly devoured. The Red-throated Divers are abundant throughout the whole of the arctic circle, and numerous in Hudson's Bay, as well as upon the lakes of the interior. We are assured that a few annually breed in the Orkneys, and on the margin of some of the Scottish lakes. Their manners are precisely those of the others.

This species is easily distinguished in its adult plumage by the large patch of rufous brown on the fore part of the neck. The sides of the head and neck are deep smoke-gray; the top of the head and upper plumage, of a deep blackish brown; under plumage, silvery white, dashed with brown along the flanks; bill, dusky; tarsi, dull olive.

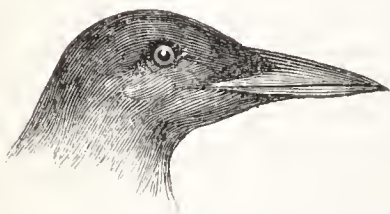
The young of the year (which has been called the Speckled Diver) has the top of the head gray, finely streaked with grayish white; upper plumage, blackish gray, the margins of the feathers being white and dull gray; throat and under plumage, white. The adult plumage is gradually acquired, but is not complete till after the third moult.

The Red-throated Diver is the smallest of the three, its length being about twenty-four inches.

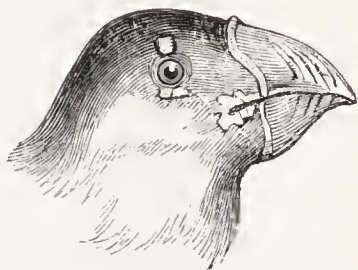
Leaving the family *Colymbidæ*, we enter upon that termed *Alcadæ*, which comprehends the Guillemots, the Puffins, the Auks, the Penguins, &c.

The *Alcadæ* are strictly inhabitants of the sea, never resorting to fresh water lakes or rivers. They are characterized by a remarkable shortness of wing, which in several we find reduced to the condition of a paddle, being of no use whatever for flight, but admirably constructed for progress beneath the surface of the water. The legs are thrown far backwards, so that on land the birds sit upright, the whole of the *tarsus* resting on the ground. The toes are usually only three in number, and fully webbed; the hind toe, where it does exist, being very small and directed obliquely forwards. The bill varies much in form, but is generally compressed, and often grooved at the sides. In some it is elongated and

sharp ; in some, moderate ; in others, compressed so as to have a sharp edge above and below ; in others, again, this flatness is carried to the utmost extent, the bill being also pointed. A few of the most characteristic forms of this organ we here subjoin, remarking, that we find a progressive series of links connecting the most opposite, so as to fill up the interval (with respect to form) between them.



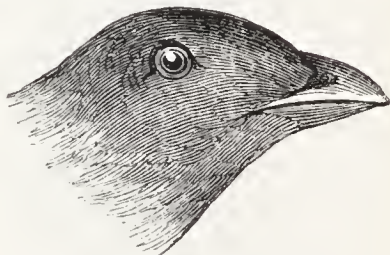
THE GUILLEMOT.



THE PUFFIN.



THE RAZOR-BILL.



THE LITTLE AUK, OR ROTCHE.

Our first genus is *Uria*, (Briss.) which contains the Guillemots. The beak is strong, straight-pointed, and compressed ; the nostrils are basal, and partly closed by a membrane covered with feathers ; the tarsi are short ; the toes, three only, and entirely webbed ; the wings, short, narrow, and pointed ; the tail, short.

In the form of the bill the Guillemots approach the divers, (*Colymbus*,) nor less so in their habits in the ocean ; being excellent swimmers and divers, remaining with ease for a long time beneath the water, and proceeding to great distances. Their food consists of fishes and marine insects.

Their flight is rapid and maintained by repeated strokes of the wings, but is not capable of very long continuance ;

nor is it needful that it should be more than sufficient to enable the birds to reach the ledges of the overhanging cliffs on which they breed. They lay a single egg only, which is very large at one end and narrow at the opposite. This conical figure is given in order that it may not roll off the shelving place of its deposit, its only motion being, as is evident, within a circle of its own length in diameter. The plumage is fine, thick, and close, and has a velvety appearance; it is totally impervious to water.

The FOOLISH GUILLEMOT, (*Uria Troile*,) or WILLOCK, as it is often called, is one of the commonest birds on our rocky coasts, and is spread over the arctic regions of both worlds; it abounds along the shores of the Baltic, but is perhaps nowhere more abundant than at the Needles in the Isle of Wight, and along the adjacent precipitous coast. Here it breeds in numerous flocks associated together, which hold their territory separate from the razor-bills and puffins which occupy neighbouring ledges. The shelves upon which the eggs are deposited are often very narrow and even sloping; and they are all laid together as close as possible, merely allowing room for each bird to sit upon her own egg, which is done in an upright position. Thus ranged in compact rows, the Guillemots live in social harmony, each intent upon her task. Nothing is there about them to justify the appellation *foolish*. When the young are hatched, which is not until a month from the commencement of incubation, they are abundantly supplied with sprats and small fish, till in the course of five or six weeks they are capable of taking to the water and fishing for themselves.

After the breeding season is over, the Guillemots leave the rocks and betake themselves entirely to the ocean, when the old birds undergo a moult, in which the black of the throat and sides of the neck is exchanged for white, the black being acquired the following spring. On the approach of winter, when the hordes of fishes which thronged our coast retire to southern latitudes, the Guillemot migrates in their train and visits the Mediterranean or the coasts of Italy, to feed upon the anchovy and

sardine. It re-appears in flocks upon our coast towards the end of March or the beginning of April.

In its summer dress, the head and neck of this bird are jet black, the feathers being of a velvety texture; the upper surface is sooty black; the under plumage, white; bill and legs, black; length, fifteen inches.

The BLACK GUILLEMOT (*Uria Grylle*) is another species inhabiting the same localities and possessing the same habits. Its colour in summer is jet black, with the exception of a white band on the wing.

From the guillemots is separated the Little Auk, or Rotche, forming the type of the genus *Mergulus*, (Ray,) characterized by a short stout bill, the upper mandible being somewhat arched; in other respects the general characters are similar.

The LITTLE AUK (*Mergulus melanoleucos*) is the *Alca Allé* of Linnæus and the older writers. In England it is a winter visitor, its true habitat being the polar ocean, amidst fields of floating ice. It breeds in abundance on the shores of Greenland, Spitzbergen, and the arctic regions of America, whence it migrates southwards as the rigours of winter set in. Like the guillemot, its single egg is deposited on the ledge of overhanging rocks on the shore. Few birds are more active and expert on the watery element than the present little wanderer of the deep; it swims and dives with wonderful celerity. Its flight is low but rapid for a short distance, and performed by quick vibrations of the wings. Fishes, small crustacea, and marine insects constitute its food. In its summer dress, the head, neck, and upper surface are glossy black; the under plumage, white; bill, black; legs, dusky. In winter, the throat and sides of the neck become mottled with white. Length, eight inches.

The genus *Alca* now demands notice. It is characterized by a short bill, nearly as deep as long, compressed and furrowed down the sides, the upper mandible being

strong, arched, and hooked; nostrils, hidden by the feathers at the base; wings, short and narrow, and in one species unequal to the purpose of flight; tail, short; feet, with three toes, united by webs.

The Auks are truly oceanic birds, never leaving the water except for the purpose of incubation. They swim and dive with great address.

The GREAT AUK (*Alca impennis*) is by far the most



THE GREAT AUK.

remarkable of the genus. In size it equals a goose; its wings, though furnished with quill-feathers, are so small

as to be useless for organs of flight; they are, however, admirable paddles or side-oars, and are used with great effect in diving or swimming under water, a feat which it performs with extraordinary facility and speed. The Great Auk is a native of the arctic seas, and only rarely appears even so far south as the northern isles of Scotland. In the year 1822 one was taken alive near St. Kilda, and kept for some time by Dr. Fleming, who observes that, with a long and heavy cord attached to its legs, its evolutions in the water were performed with amazing strength and celerity. In 1813, another individual was killed near Papa Vestray, one of the Orkney isles, while Mr. Bullock was making a summer excursion; it formed part of his late museum. He informs us, that so great was its swiftness, that he chased it in vain in a six-oared boat, in order to get within gun-shot; but that it appeared to be familiar with the boatmen, whom it allowed to approach by themselves, and by whom it was killed. Besides these two examples, we know not of any others which have been taken within the British dominions.

The icy shores of Greenland and Spitzbergen are the favourite abodes of this extraordinary bird. In these latitudes it is often found far out at sea, and is never known to go on land except for the purpose of breeding; the deep clefts of rocks, above the reach of the highest tides, or retired places among the cliffs or caverns, being its resort for this purpose. The egg, which is single, is as large as that of a swan, and of a yellowish white, veined and marbled with black. Fish and marine crustacea constitute its food.

Length, about three feet; upper plumage, deep jet black, with the exception of a large patch of white on the forehead and around the eyes, and a slight band of white on the wing; under plumage, white; bill, black; legs, very short and dull black.

The RAZOR-BILL AUK (*Alca Torda*) is a native of the precipitous rocky coasts of our island, as well as of the European continent from north to south. In its manners it closely resembles the guillemot, visiting our shores

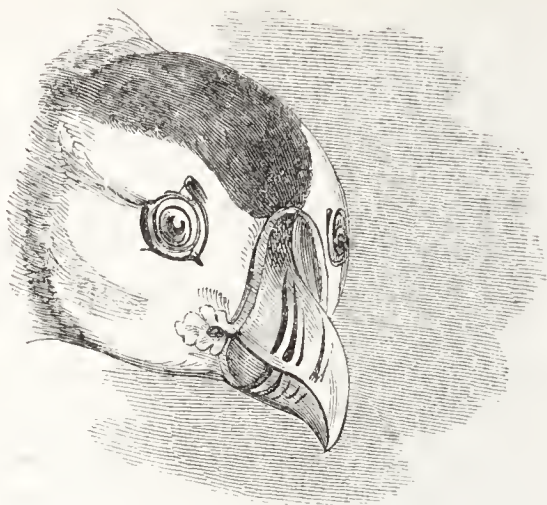
at the same time, and occupying the same breeding-places. Its flight is also similar, being performed by rapid strokes of the pinions, and (except when endeavouring to attain the ledge of the rock on which it breeds) at a low elevation. We may remark, that in order to reach the top of the cliffs, all these short-winged diving birds make a long sweep, and gradually rise, as if incapable of a perpendicular ascent or an upward flight, even at a moderate angle. It is curious to see the rows of these birds, thickly covering the shelves and ledges appropriated to the purpose of incubation, their black and white livery setting them off to great advantage, and well contrasting with the gray or dusky rock on which they are collected.

Head, neck, and upper plumage, black—a narrow but very distinct white line running from the base of the upper mandible to the eye; under plumage, white; bill, black, with a white band down the sides of each mandible; legs, black; length, fifteen inches.

The genus *Mormon*, (Illiger,) *Fratercula*, (Briss.) is distinguished from the genus *Alca* by the bill being shorter than the head, as broad as long, and very compressed, the edge of the upper mandible being thin and sharp; the nostrils are slits placed on the border of the upper mandible near the base; the general shape of the beak, on a lateral view, is somewhat triangular, and a loose skin surrounds the corners of the mouth. In other respects the characters of the two genera are similar.

The PUFFIN (*Mormon Fratercula*, ILL.) is the type of this genus. This bird resembles the guillemot and the razor-bill in its general manners, localities, mode of flight, and of incubation. From the contour of its figure, which is round, thick, and ball-like, and the singular aspect of its physiognomy, it cannot but attract attention. Notwithstanding its rotundity of form, it is a most expert swimmer and diver; and the sharp cutting edges of its broad beak, we may readily conceive, tend to facilitate its progress beneath the surface. Perched on the cliff of the craggy precipice, it looks down with eager gaze upon the

sea beneath, and throws itself headlong into the abyss, cleaving with its beak the briny waters, which close as it disappears. Its food consists of the smaller fishes, and



HEAD OF PUFFIN.

especially the young of the sprat, among the shoals of which it makes unceasing havoc. Laden with a row of these hanging from the bill, their heads being secured between the mandibles, it returns to its mate or its young one, expectant of the due supply, which the ocean fails not to yield. Having delivered up the spoil, it again plunges into the waters and continues its exertions.

The Puffin makes its appearance at its customary breeding-places about the middle of April, and departs in August to winter in the southern coasts of Spain, Italy, and other parts of southern Europe. It is very numerous at the Needles, in the Isle of Wight; upon Priestholm Island, off the coast of Anglesea; and other places. Mr. Selby states that “many resort to the Fern Islands, selecting such as are covered with a stratum of vegetable mould; and here they dig their own burrows, from there not being any rabbits to dispossess upon the particular islets they frequent. They commence this operation about the first week in May, and the hole is generally excavated to the depth of three feet, often in a curving direction, and occasionally with two entrances. When engaged

in digging, which is principally performed by the males, they are sometimes so intent upon their work as to admit of being taken by the hand; and the same may also be done during incubation. At this period I have frequently obtained specimens by thrusting my arm into the burrow, though at the risk of receiving a bite from the powerful sharp-edged bill of the old bird. At the farther end of this hole the single egg is deposited, which in size nearly equals that of a pullet." The young are covered with blackish down, which they gradually lose, being able in a month to follow their parents to the sea. On rocky precipitous coasts the Puffin selects the clefts and hollows between the crags for the site of incubation.

The crown of the head, upper parts of the body, and collar round the neck are glossy black; cheeks, pearl grey; under plumage, white; two horny appendages are placed on the eyelids, the smaller one above, the larger beneath, their colour is leaden gray; the bill is deeply furrowed and bluish gray at the base, the middle part orange red, which deepens into bright red at the tip; legs, orange red. Length, thirteen inches. The young have the beak small and smooth, and of a dull yellow; their general plumage is also more dusky.

The last genus of the family of *Alcadæ* to be noticed is that termed *Aptenodytes*. It includes the Penguins, birds incapable of flight, having wings reduced to the size and appearance of paddles, appearing at a first view as if covered with scales, the feathers being short and rigid, and disposed in scale-like order. Their tarsi are placed completely behind, perpendicular to the body, so that the attitude of these birds on the land is as upright as that of man. The toes are webbed, and the tarsi very short and stout. The several species are all natives of the seas of the southern hemisphere. They never visit the shore except for the purpose of breeding, and their progress on land is by pushing themselves along on their belly; for, though they stand upright, they cannot walk in this attitude. While swimming in the water, they are immersed above the breast, the head and neck only appearing, the

finny wings being used as oars. The character of these aquatic wings will be best understood by the annexed sketch from nature, of the wing of the Patagonian Penguin, the largest of the tribe.



PADDLE OF PENGUIN.

A sketch of the head is also subjoined, to show the characters of the beak, which it will be observed is long, slender, and slightly bent at the tip; the upper mandible having a longitudinal furrow, and being also covered with feathers down a third of its length, concealing the nostrils.



HEAD OF PENGUIN.

The Penguins seem to occupy the place in the antarctic ocean which is occupied by the auks (and especially the

Alca impennis) in the arctic, their food, habits, and manners being very similar. The species are numerous, and are divided into sub-genera; the minute differential characters of which we shall not attempt to notice.

On the Falkland Isles, and in Terra del Fuego, a species termed the MAGELLANIC PENGUIN (*Aptenodytes Magellanica*) dwells in thousands during the breeding season. They were killed by the sailors of Captain Cook's ships in great numbers, but were very unpleasant as food. Unaccustomed to the sight of man, they had not yet learned to dread his power; and instead of retiring from the destroyer, they remained unmoved. In swimming, their swiftness and dexterity were observed to be so great that no fish could escape their pursuit. On meeting with any obstacle in the water, they would spring over it by a sudden exertion, leaping four or five feet above the surface, and again continue their course. This is the species, according to the opinion of Dr. Latham, to which Penrose alludes, of which he observes that "the chief curiosity is the laying their eggs; this they do in collective bodies, resorting in incredible numbers to certain spots which their long residence has freed from grass, and to which were given the name of *towns*. Here, during the breeding season, we were presented with a sight which conveyed a most dreary, I may say awful, idea of the desertion of these islands by the human species; a general stillness prevailed in these *towns*, and whenever we took our walks among them to provide ourselves with eggs, we were regarded with sidelong glances, but carried no terror with us." The Magellanic Penguin is about two feet in length.

The CRESTED PENGUIN (*Catarrhactes chrysocoma*, Briss.) is another species, about as large as a duck, which inhabits the Falkland Islands and Van Diemen's Land. It has obtained the name of Jumping Penguin from its habit of leaping quite out of the water, not only to avoid obstacles, but as if for sport. Captain Carmichael, in his description of the island of Tristan da Cunha, says of this

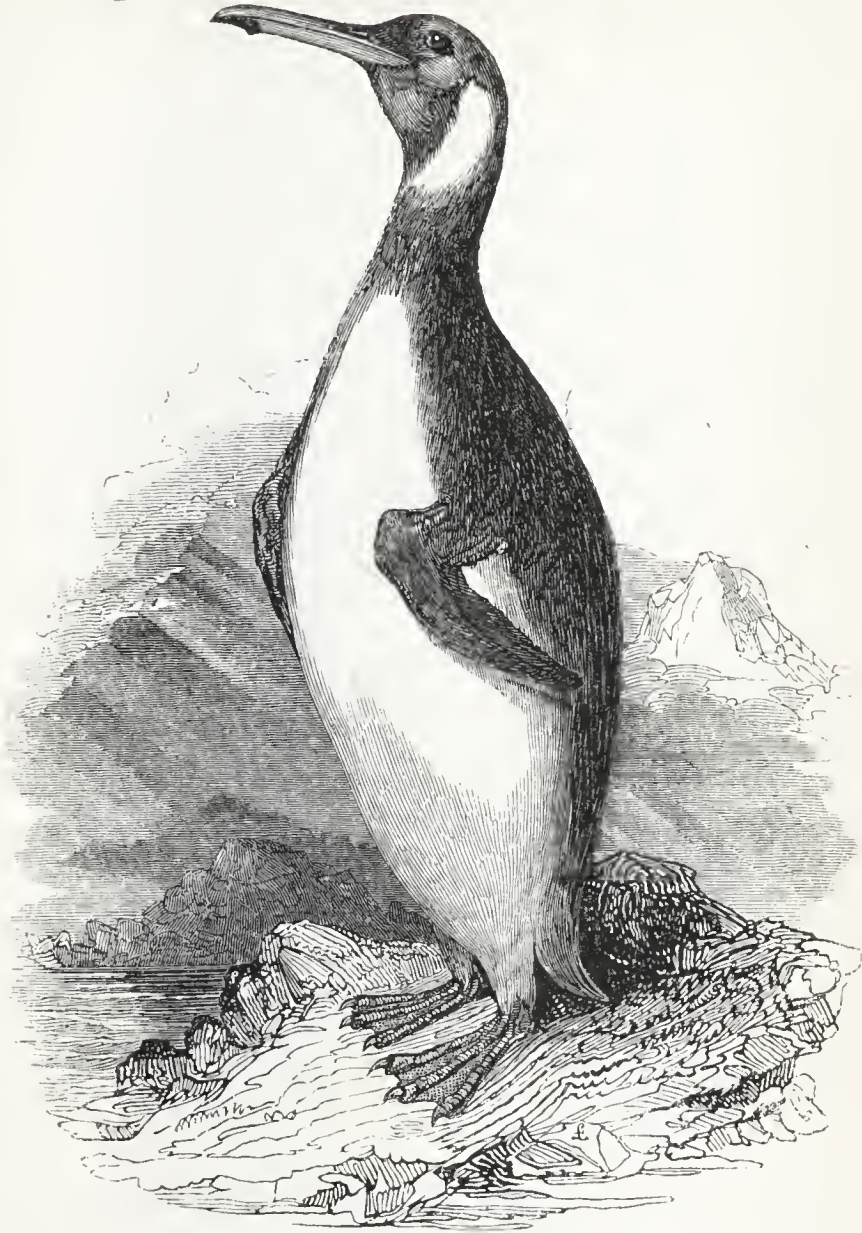
species, that it “conceals itself among the long grass, and in the bottom of ravines where they open upon the shore. Here they assemble in countless multitudes, and keep up a moaning noise, which can be heard at a great distance from the mountain, and the bold inhospitable coast around you is calculated to excite a train of ideas by no means pleasant.”—He also adds, that “In many birds I had an opportunity of examining, the pupil was contracted to a mere dot.” See Linn. Trans. v. xii.

The most celebrated, however, and by far the largest of this singular tribe of birds is the PATAGONIAN PENGUIN, (*Aptenodytes Patagonica*,) of which we have given a sketch of the head and wing, in illustration of their general characteristics. This extraordinary species was first met with in the Falkland Islands, New Georgia, &c. In New Year’s Island, near Staaten Island, these birds were seen by Captain Cook in thousands, and more than five hundred were taken by the ship’s company for food, (Cook’s Last Voyage, vol. i. p. 87.) Dr. Latham states that M. Bougainville “caught one which soon became so tame as to follow and know the person who had the care of it; it fed on flesh, fish, and bread, but after a time grew lean and pined away and died.”

Much that is related of this bird is very contradictory; there are few birds whose habits are so little understood, in their minor details, as those of the present group; but, from the imperfect accounts received, their manners have much to interest the naturalist. The Hairy and the Woolly Penguin of Latham are the young of the present species, in different states of plumage.

The plumage of the adult is very striking; the top of the head and throat are black, bounded by a rich yellow belt, which commences broad so as to occupy a large space on the sides of the head; it then becomes narrow, and runs down to the middle of the neck, where it passes onwards till it blends with the white of the under plumage. The upper surface is glossy silvery gray; each feather being dusky black, but tipped with that colour which produces, at a little distance, a uniform effect. The tail consists of slender stiff elastic feathers; bill black, the

base of the under mandible being rich reddish purple or plum colour; length four feet; weight, according to Latham, forty pounds.



THE GREAT PATAGONIAN PENGUIN.

We now conclude the family of *Alcadæ*; one more yet remains to finish the present rapid survey of the feathered tribes, whose habits and forms so pointedly declare His glory, who “was in the beginning, and was the beginning, and without whom was not any thing

made that was made," His glory, who is our God and our Redeemer.

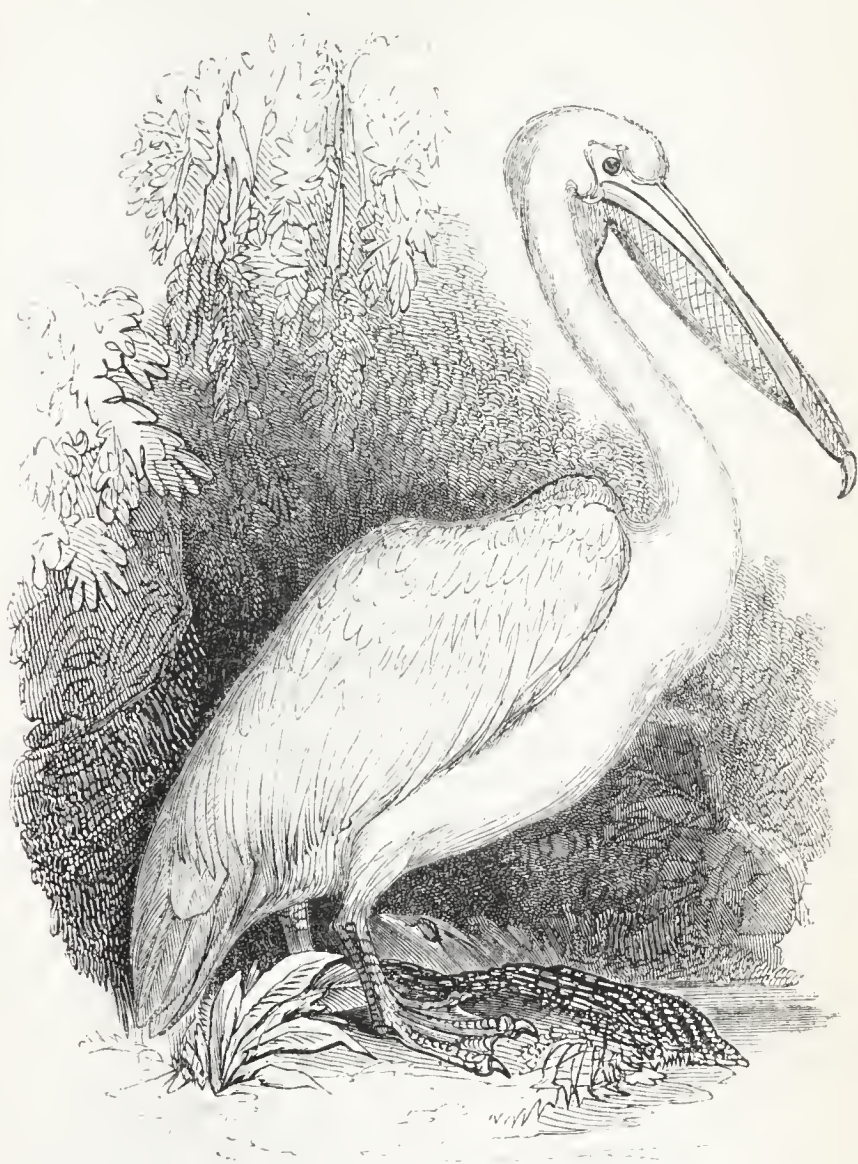
The next family is termed PELECANIDÆ, and comprehends the Pelican, the Gannet, the Cormorant, the Darter, the Frigate-bird, and many others, in all of which the beak is more or less denuded of feathers at the base; the nostrils being mere slits not very perceptible. The skin of the throat is more or less capable of being dilated, and the tongue is very small. The toes are four in number, all connected together by webs, that which is properly the hind toe having an obliquely forward direction. The beak varies in form, but it is strong, and longer than the head in all. Some of the groups approach the Anatidæ, others the Gulls and Terns, others the Colymbidæ, and one group the Falcons and rapacious birds in their habits and manners, as well as in a corresponding modification of form.

The first genus is that termed *Pelecanus*; it contains the celebrated PELICAN. The generic characters are as follow: the bill is of great length, broad, flattened, and straight, with a hook at the extremity of the upper mandible; the under mandible is formed of two long slender flexible branches united together at the tip, and enclosing a widely dilatable membranous pouch, which extends for some distance down the front of the neck. The nostrils are very small, and placed in a slight furrow near the base of the upper mandible; the tongue is merely rudimentary; the eyes are surrounded by naked skin; the body is large; the legs short; the wings moderately ample.

The WHITE PELICAN (*Pelecanus onocrotalus*) is not only the largest bird of the present family, but of the Natatorial order, measuring nearly six feet from the extremity of its bill to the tip of its rounded tail, and from ten to twelve in the expanse of its wings. Notwithstanding its size and bulk, it is capable of soaring to a great height in the atmosphere, and of maintaining a protracted flight; for the specified weight of the body is lighter than it ap-

pears, owing to the extensive air-cells which penetrate in various directions, and the hollow structure of the larger bones, which are tubes also filled with air.

This stately bird is not uncommon in several of the



THE WHITE PELICAN.

warmer countries of Europe, whence it sometimes wanders into more northern latitudes. In many parts of Asia and Africa it abounds in incredible numbers, not only on the shores of the sea, but along the larger rivers, on lakes, and inland waters. It abounds on the Black and the Caspian Seas, coming and going, as Latham

states, “with the swans, geese, and storks.” Their flight is said to be in the figure of a wedge, as we see it in wild geese, during their migrations from one country to another. The food of the Pelican is fish, in quest of which it hovers and wheels over the water, plunging down with great rapidity upon such as approach the surface, and seldom missing its aim. These it transfers to its capacious pouch, which it fills with as many as it can conveniently carry, and then wings its way to some rock or solitary island, in order to devour them at leisure, or feed its voracious brood.

The number of fish which this pouch will contain may easily be imagined, when we state that it is so highly dilatable as to be capable of containing two gallons of water. In order to disgorge the prey which it has received, the bird presses the pouch against the breast, and in this manner the food is conveyed into the throats of the young, an action, as a talented writer observes, “that has given rise to the fable of the Pelican feeding its young with its blood.”

The Pelican chooses remote and solitary islands, isolated rocks in the sea, and the banks of rivers and lakes, as the site of its nest, which is composed of dried vegetable matter; the eggs are said to be two in number.

We find this bird more than once noticed in the sacred writings; it is mentioned with the swan, in Levit. ii. 18, among the creatures forbidden as food. In Psalm cii. 6, the writer in affliction says, “I am like a Pelican of the wilderness,” alluding to his solitary condition, with none but Him who “laid the foundations of the earth,” on whom to call.

The present species is, when adult, almost entirely white, with a slight tinge of flesh colour. The feathers of the chest are long, firm, and silky, with a tinge of straw colour. The quill-feathers are black, but nearly concealed beneath the wing-coverts, which are long and pointed, and are very regularly and beautifully disposed; the bill is yellowish, passing into red at the tip, the sides of the lower mandible, and a line down the upper being lead-coloured; the pouch is pale yellow. Besides the present, there are several other species, all of which exhibit the

same general habits. India, New Holland, and America have each their peculiar species ; so that we may account the genus as universally distributed.

The next genus to be noticed is that termed *Sula* ; characterized by a long bill, which is thick at the base, and tapers gradually to a sharp point, constituting a formidable weapon. Beneath the under mandible the skin is naked and dilatable ; and the edges of the upper are furrowed with teeth directed backwards, resembling those of a fine saw. The face is naked ; the wings are long and pointed ; the tail is graduated ; the four toes are all connected together by webs ; the claw of the middle toe pectinated as in the heron.

The genus *Sula* contains the Gannets. Gifted with unwearied powers of flight, the birds of this genus are incessantly soaring over the ocean, eagerly surveying its glassy surface in quest of fish, upon which they dart from their elevation with amazing impetuosity. They do not dive, nor are they expert as swimmers, seldom, indeed, resting on the water, where, when they do alight, they float without using any exertion. During the breeding season they assemble together in large flocks, and take up their quarters on the most precipitous rocks which overhang the deep. They lay but one egg, and the young are nearly four years in acquiring the full plumage of maturity. The species are not numerous, one alone is a native of Europe.

The GANNET, or Solan Goose, (*Sula Bassana*.) The Bass Rock, at the entrance of the Frith of Forth ; the Isle of Ailsa, on the mouth of the Frith of Clyde ; St. Kilda ; and the Skelig Isles upon the Irish coast, are the annual resorts of this bird for the purpose of incubation ; it arrives about the end of March, from the more southern latitudes of Europe, where it sojourns during the winter, and soon begins to incubate, the female laying a single egg, for which a nest is prepared of sea-weed and other vegetables, and placed on the ledges and projections of the rocks ; on these giddy heights multitudes breed in harmony together. When first hatched, the young are

quite destitute of down, and the skin is of a dark lead colour. In a few days, however, a white down makes its appearance, which soon becomes extremely thick and full.



THE GANNET.

The true feathers gradually cover this warm vestment, and in about two months they are able to take wing.

The Bass rock may be regarded as an established farm for Gannets, the young of which are prized not only on account of the down that forms their clothing, but for their flesh also, which is roasted, and esteemed as a relish, though it is rank and oily, and disgusting to those unaccustomed to it. In the markets of Edinburgh and other towns in Scotland, thousands of Gannets are sold, at the rate of one shilling and eight pence each; hence the breeding of these birds is much encouraged. The precipitous Bass rock is rented from the proprietor at sixty or seventy pounds a year, and the proceeds depend upon the produce of the Gannets. "Great care," observes Selby, "is taken to protect the old birds, which the tenant is enabled to do, from the privilege possessed

by the proprietor of preventing any person from shooting or otherwise destroying them within a certain limited distance of the island. From the accounts I have received from the resident there, it appears that the Gannet is a very long lived bird, as he has recognised from particular and well known marks certain individuals for upwards of forty years, that invariably returned to the same spot to breed. . . . During incubation, in consequence of being unmolested, they become very tame; and, where the nests are easily accessible upon the flat surface of the rock on the south west side of the island, will allow themselves to be stroked by the hand without resistance, or any show of impatience, except the low guttural cry of *grog, grog*." In St. Kilda the eggs and flesh of the Gannet constitute a main article of food; and the same is the case in other islands also, where these birds abound. The young are cured and dried for winter consumption; and it is said that more than twenty-two thousand birds, and an amazing quantity of eggs are annually consumed in St. Kilda alone. From this statement we may form some idea of the multitudes congregating on that rocky isle; Latham considers one hundred thousand far too low an estimate. Yet all these, and thousands more, are supplied from the store-house of the ocean with food; the treasures of the deep, that liquid magazine, are not its "buried gems," nor the gold and silver of "royal argosies," sunk beneath the waves; what are these to the tribes which the Almighty has created to draw their subsistence from that teeming source? Its treasures are the millions of living things which make that element their home, and whose reproduction is adequate to counterbalance the destruction perpetually going on. If one hundred thousand Gannets devour each five herrings or other fishes daily, round the isle of St. Kilda, the total consumption in twelve months will be one hundred and eighty-two millions; but this statement is far below the truth. What a view have we here of the power of that God whose wisdom has arranged the movements of all created things, and superintends all events!

The force with which the Gannet precipitates itself upon its prey, from the great height at which it usually

soars, may be conceived, from the fact that it is sometimes caught by means of a fish fastened to a board sunk to the depth of two fathoms ; in which case either the neck has been found dislocated or the sharp bill firmly wedged in the wood.

This bird is distributed throughout the northern parts of Europe and America, but is every where migratory.

The general colour of the adult is white, the top of the head and back of the neck being tinged with yellow ; the quill-feathers are black ; bill, bluish gray ; webs of the toes, dusky ; a bluish green streak runs down the front of the tarsus and along the upper part of the toes. Length, two feet eight or ten inches. In the young birds of the year, the whole of the upper plumage is dusky gray, each feather being tipped with white, and the under plumage is clouded with dull gray. The second year produces a nearly uniform brown above, with an under plumage almost wholly white. The third year gives an almost universally white plumage, with traces of yellow on the head. The fourth year completes the change.

Here the genus *Phaëton*, comprising the Tropic Birds, may be introduced. The name given to these birds arises from their being found chiefly within the tropics, beyond which, indeed, they pass so rarely, that their appearance indicates to the mariner his proximity to the torrid zone. They are distinguished by two long, straight, and very thin feathers, with stiff elastic shafts in the tail, which is wedge-shaped ; their beak is compressed, straight, long, and pointed ; the face is fully clothed with feathers ; the tarsi are short ; the toes, four in number, are united by webs. The Tropic Birds may be regarded as allied in many points to the terns, which they resemble in the form of their bill. They are incessantly soaring over the ocean, or skimming its surface in pursuit of flying fishes, which, in glittering shoals, from time to time are forced by the shark or dolphin to take refuge in the air, where they meet with new enemies, eager on the watch, and rapid as lightning in the attack. The Tropic Bird rarely trusts itself to the water ; it is, however, some-

times observed to rest, floating on the smooth sea, and occasionally, when the weather is serene, to settle on the backs of the drowsy turtles sunning themselves at the surface. — On shore, which these birds seldom visit, except for the purpose of nidification, they rest on trees and rocks, and breed in crevices and holes in the ground.

The RED-TAILED TROPIC BIRD (*Phaëton phænicurus*) is a most beautiful and scarce species. The general colour of its plumage is white, with a delicate rose tint pervading the whole, but especially prevailing on the chest and wings. A black mark stretches from the beak, and partly surrounds the eye; the long scapularies are dashed in their centre with black, which is the colour of the shafts of the quill and tail-feathers; of the latter, the two middle are elongated beyond the rest to the length of twelve inches; they are broad at their base, but become rapidly narrow, the barb on each side of the whale-bone-like shaft being not more than a line in breadth, and of a deep vermilion. The bill is scarlet, the feet black. Total length, excluding the elongated tail-feathers, one foot seven inches.

The genus *Plotus*, or *Anhinga*, comprehends a very limited number of species, two only being recognised, one peculiar to the old world, the other to the continent of America. Few birds are more singular in their appearance than these; their extremely long neck, small head, and pointed beak, which, while the birds are swimming, alone appear out of the water, have led to the name of Snake Bird: the Darter is also another appellation. The generic characters are briefly as follow: beak straight, slender, pointed, and finely serrated along the edges; nostrils narrow slits; tarsi short and strong; toes four, united by webs; wings long; tail long, and composed of stiff elastic feathers, it serves the office of a rudder.

These curious birds, which convey the idea of a reptile united to the body of a cormorant, are found upon large rivers and lakes, as well as upon the sea in bays and creeks, where they are destructive enemies to fish, upon which they subsist.

The species peculiar to the old world is VAILLANT'S DARTER, the *Plotus Vaillantii* of Temminck; it is a native of the eastern and southern parts of Africa, India, and the islands of Java and Sumatra.

The American species is the BLACK-BELLIED DARTER of Wilson. (*Plotus Anhinga*.) Both have been confounded together, under the title of *Plotus melanagaster* and other names; M. Temminck, however, has extricated them from a labyrinth of confusion, in which they had been entangled, and pointed out their distinctive characters. The beak is more slender in the species peculiar to the old world, and its general size somewhat less; besides which there are differences in the plumage, but these cannot be understood without actual comparison.

“Whether the Darter,” says Temminck, “be on its perch, or whether it be swimming or flying, it is certain that the most striking and remarkable part of its body is its long slender neck, which is continually in tremulous oscillation; in flight alone it is unmoved and stretched out, and forms, with the tail, a straight horizontal line; its long tail, composed of strong and elastic feathers, serves as a rudder when swimming submerged in pursuit of fishes, upon which it principally feeds. When the Darter seizes a small fish, it swallows it entire; but if it be too large, it carries it to a rock, or the trunk of a tree, and fixing it beneath one of its feet, it cuts it up by strokes of its beak. It establishes its nest on trees or rocks, in the vicinity of waters. It is excessively wild in its disposition, and difficult to be approached, especially while swimming.” “It is incessantly diving, and reappears at a great distance.”

The American species is well described by Mr. Ord in Wilson's American Ornithology, from which admirable work we shall take a few extracts.

“The Snake Bird is an inhabitant of the Carolinas, Georgia, the Floridas, and Louisiana, and is common in Brazil and Cayenne. It seems to have derived its name from the singular form of its head and neck, which, at a distance, might be mistaken for a serpent. In those countries where noxious animals abound, we may readily conceive that the appearance of this bird, extending its

slender neck through the foliage of a tree, would tend to startle the wary traveller, whose imagination had portrayed objects of danger lurking in every thicket. Its habits, too, while in the water, have not a little contributed to its name. It generally swims with its body immersed, especially when apprehensive of danger, its long neck extended above the surface, and vibrating in a peculiar manner. The first individual that I saw in Florida was sneaking away to avoid me along the shore of a reedy marsh, which was lined with alligators, and the first impression on my mind was that I beheld a snake, but the recollection of the habits of the bird soon undeceived me. To pursue these birds at such times is useless, as they cannot be induced to rise, or even expose their bodies.

“Wherever the limbs of a tree project over and dip into the water, there the Darters are sure to be found, these situations being convenient resting places for the purpose of sunning and preening themselves, and probably giving them a better opportunity of observing their finny prey. They crawl from the water upon the limbs, and fix themselves in an upright position, which they maintain in the utmost silence. If there be foliage, or the long moss, they secrete themselves in it in such a manner that they cannot be perceived unless one be close to them. When approached, they drop into the water with such surprising skill, that one is astonished how so large a body can plunge with so little noise, the agitation of the water being apparently not greater than that occasioned by the gliding of an eel.”

To this account Mr. Bartram adds, “They delight to sit in little peaceable communities on the dry limbs of trees hanging over the still waters, with their wings and tails expanded.” “At such times, when we approach them, they drop off the limbs into the water, as if dead, and for a minute or two are not to be seen; when on a sudden, at a great distance, their long slender head and neck appear like a snake rising erect out of the water.” “In the heat of the day, they are seen in great numbers sailing very high in the air, over lakes and rivers.”

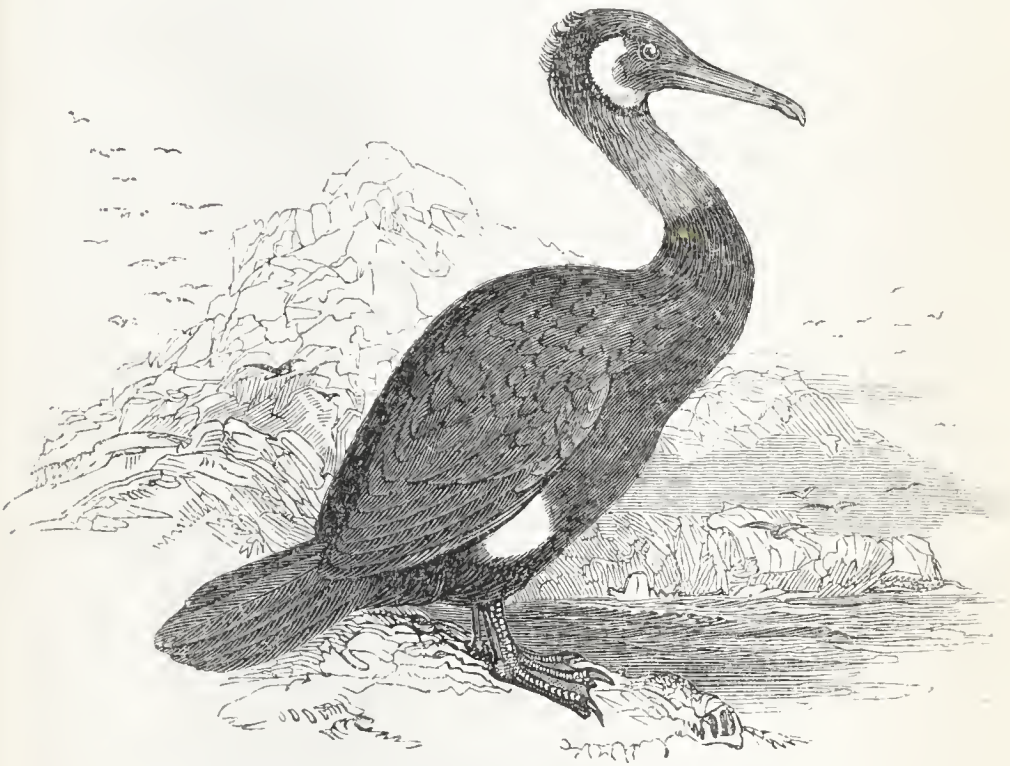
The plumage of the Darter undergoes several changes

before it is fully established. The general colour of the American species is glossy greenish black; the scapular feathers are very long and slender, forming a sort of pendent plume over the back and wings, and ornamented with a narrow white stripe down the centre of each. In the female and young, the front of the neck is of a rusty gray colour, which spreads over the chest. Length about two feet eight or ten inches; but the body does not exceed in size that of a large duck.

The Cormorants constitute the genus *Phalacrocorax*, (Brisson,) or *Carbo*, (Meyer.) The generic characters are as follow: bill long, straight, and compressed, the upper mandible being strongly hooked at the point; cheeks and throat naked; tarsi short and strong; the toes, four in number, being united by webs, and the nail of the middle toe having a serrated edge; wings moderate; tail rounded, and composed of stiff elastic feathers. Excellent divers, and pursuing their prey, quick and active as it is, with astonishing rapidity, the Cormorants, like those birds which we have noticed as preeminent for address on the water, are but slow and embarrassed on the land, aiding themselves by their tail, which serves as a sort of prop. The same may be also observed of the New Holland Musk Duck, (*Hydrobates*,) which we pointed out as allying the ducks to the present group. In swimming, the body is nearly submerged, and the tail completely so, acting as a most efficient rudder. Their flight is rapid and strong. They perch, like the darter, on trees, where they often build their nests, though in this respect they are guided by circumstances. In spring they acquire ornamental feathers on the neck and thighs; the young do not assume the adult colouring till after the autumn moult.

The COMMON CORMORANT (*Phalacrocorax Carbo*) is the most characteristic example. A native of the northern regions of both portions of the globe, this splendid bird is common on the British shores, as well as on those of the adjoining continent, where it selects the very summits of the highest rocks for the site of its nest. An

unwearied and active fisher, it is the scourge of the finny tribes, the eel being its favourite food. The gullet is large and dilatable, so that a fish of considerable size is swallowed without any difficulty, head foremost; should the fish, however, be seized transversely, the bird throws it into the air, and dexterously catches it as it falls. The eyes of the Cormorant, in consequence of their structure,* are expressly adapted, as is the case with other diving



THE COMMON CORMORANT.

birds, for subaquatic vision; hence, in the act of looking for its prey, the head is always kept beneath the surface. In winter, the Cormorant often wanders inland, and may be seen on lakes and rivers at a considerable distance from the sea. Its nest consists of a mass of sea-weeds compacted together, and is generally placed upon the highest pinnacle of the rocks, overhanging the outspread waters. The number of eggs are from three to five.

* The cornea being flat, and the crystalline lens almost globular; in fishes it is entirely so.

The young, when first hatched, are quite naked, like the young of the gannet, but soon become covered with thick black down, and are fledged and capable of taking to the water in about six weeks.

When surprised in the nest, they have a singular habit of stretching out the neck, raising up the head, opening their bills, and vibrating the loose skin of the throat, at the same time uttering a cry expressive of alarm and danger. The Cormorant has usually been regarded with dislike, from an exaggerated idea of its ravenous propensities and ferocious disposition; like other fish-eating birds, its digestion, as is well observed by Selby, “is rapid, and its consumption of food consequently great; but the epithet of glutton, and the accusation of unrelenting cruelty, are no more applicable to it than to any other bird destined by its Creator to prey on living matter.” It will, perhaps, surprise our readers to assure them that the Cormorant is extremely docile and affectionate; one of these birds, which was caught by accident, was kept by Col. Montagu, and very shortly became quite tame and familiar, joining him at the fire-side, and dressing its feathers with perfect self-possession. It lived in perfect harmony with ducks, swans, geese, and other birds, and was only excited by the sight of fish. It never attempted to ramble, but if a door was open would walk into the house, “without deference to any one, regardless even of a dog,” and was, in fact, “troublesomely tame.” This character Selby observes he can confirm, having himself kept one in a domesticated state.

In China, the present bird, or an allied species, is trained for the purpose of catching fish, as hawks were for falconry; and such it appears was the case in Europe. “Whitelock says he had a cast of them manned like hawks, and which would come to hand; he took much pleasure in them, and relates that the best he had were presented to him by Mr. Wood, master of the Cormorants to King Charles the First.”—See Latham. Swammerdam also relates the circumstance of trained Cormorants being brought from Holland to England for sale. It appears that in China, as formerly in Europe, when these birds are taken out to

fish, a string or leather thong is fastened moderately tight round their necks, in order to prevent their swallowing the prey they seize, which they would otherwise do, and having satiated themselves, repose in indolence. As soon as their work is over, they receive a portion of the spoil which they have so industriously procured. It is said, that if one bird seizes a fish too heavy for it to manage, one of its companions will hasten to its assistance, and both mutually exerting themselves, convey it to the boat where their master is waiting to receive it. Such is their docility, that one man easily manages a considerable number, all fishing at once. The Cormorant is mentioned in the Scriptures as among unclean birds, and is elsewhere also alluded to, though according to some commentators the word will bear translating *pelican*.—See Isaiah xxxiv. 11.

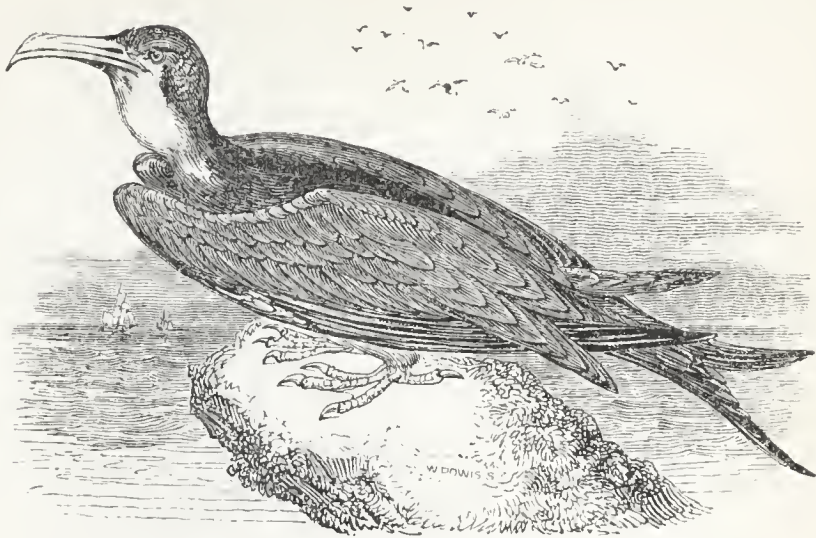
The colours of the adult, in full plumage, are as follow : Top of the head, neck, breast, lower part of the back, and under surface, of a glossy greenish black ; a white gorget stretches across the throat, and white silky hair-like feathers are scattered over the upper part of the neck ; top of the back and wings, fine bronze brown, each feather having a marginal belt of rich velvet black ; quill and tail-feathers, black ; bill, dusky ; the naked skin of the throat, yellowish ; feet, black.

Besides the Cormorant, our islands produce a second species, the CRESTED SHAG, or Green Cormorant, (*Phalacrocorax cristatus*,) which is very common on almost every rocky portion of our coast, where it builds a seaweed nest, and rears its young. In its habits and manners it precisely agrees with the foregoing species, so as to require no separate notice. The crest, which consists of a tuft of long green feathers, is lost after the breeding season. The upper part of the back and the shoulders of a deep bronzed green, every feather having a margin of velvet black. The head, neck, and under surface fine silky blackish green. Tail consists of twelve feathers. Tarsi and toes black ; naked skin of the throat yellow. The foreign species of the present genus are rather numerous, and not very well made out.

There is something in the general habits and manners of the *Pelecanidæ*, and one or two other families of the present order, which strongly brings to mind the raptorial birds, with which we commenced our survey. Look at the osprey, (*Pandion Haliaëtus*,) look at the sea-eagle of the old world, or the white-headed eagle of North America, and let the inquiry be, Can we not bring forward their parallels among the natatorial birds, and the present family especially? Some are industrious fishers, like the osprey; others are their despoilers, like the white-headed eagle. Added to this, their powers of flight, enabling them to soar and plunge from their altitude upon their prey in the deep below, remind one of the swoop of the eagle, or the kite, or the pounce of the long-winged falcon; while such as skim the surface, and sweep off their prey as they fly, are not ill represented by the light and slender harriers, (*Circus*,) or the sailing kites, (*Milvus*,) that scour the wide and open plains, on pinions quick and dexterous as those of the swift or goat-sucker. If these ideas have any foundation in the laws of nature, if birds of opposite orders are thus linked together, as it were, by a parallelism of form, habits, and manners, the genus now to be introduced, and with which we shall conclude this rudimentary sketch, will fully illustrate the point in question.

This genus is termed *Tachypetes*, and is characterized by a strong elongated beak, having a powerful hooked nail at the tip; by extremely short tarsi, and feet only partially webbed; long wings, and a forked tail. One clearly ascertained species is all at present recognised; namely, the FRIGATE-BIRD, (*Tachypetes Aquilus*, VIEILL.) whose alliance to the Falconidæ is expressly alluded to in its specific appellation. This bird is among the most singular of the feathered race: while on the one hand its place in nature would appear, from its webbed feet, to be among the water birds that sport on the ocean's surface; on the other hand, its general form and rapacious habits ally it to the birds of prey that strike their quarry on the wing, or sweep it from the ground, and of these, perhaps, more particularly to the kites. The truth is,

that it forms the link which unites these two extremes of a long chain of gradations, and either party may claim it



THE FRIGATE-BIRD.

with almost equal propriety. Although an ocean-bird, its province is not the water, but the air; it neither swims nor dives, nor even rests, like the gull, on the billows. Its feet are indeed webbed, but the webs are very partial; the tarsi (or legs, as they are generally called) scarcely half an inch in length, the whole limb very short, and covered to the feet with long loose feathers; the tail is long and forked, the wings of extraordinary spread, and the general plumage deficient in that close and downy texture which always characterizes a bird whose habitat is the surface of the deep. Its conformation, on the other hand, as manifestly declares it to be aerial; aerial, not with the land below, on which it may repose and rest when weary, but aerial with the ocean below, on which it never rests, and which, affording it its food, does all that is required.

The Frigate-bird is to be met with principally between the tropics, hundreds of leagues from land, to which, except for the purpose of hatching its young, it never resorts. It is ever on the wing, often soaring so high as to be scarcely visible, at other times skimming at a moderate distance from the water, and darting with the rapidity of an arrow upon any unfortunate fish which approaches the surface, so as to be within the reach of its

beak. The flying-fish are its special prey ; driven by the dolphin out of the water to trust to their fan-like wings, they are pounced upon by this voracious bird, who, not content to limit himself to the procuring of food by his own labours, attacks gulls and other sea-birds that have just made a successful capture, and obliges them to give up their booty. In his ferocious disposition and mode of taking his prey on the wing, as well as in the curved or hook-like termination of his beak, he resembles the falcon tribe, nor less so in the powers of maintaining a rapid and lengthened flight, in which he excels every other bird. We have said that he is met with hundreds of leagues from land ; in fact, there is but one purpose, that of hatching and rearing the young, for which this bird ever resorts there ; under ordinary circumstances, it continues ever on the wing over the ocean, reposing on outspread pinions in the higher regions of the air, where, without any effort, it can remain suspended. The strangeness of this fact will be removed, when we inform our readers of the mechanical contrivance with which the bird is furnished. Beneath the throat is situated a large pouch, capable of being distended with air from the lungs, with which, as well as with the hollow bones of the wings, it immediately communicates. The bones of the wings themselves, besides being hollow, are extremely long and light ; thus this pouch or sack beneath the throat, and these tubes, are filled with rarefied air, forming an apparatus analogous to a balloon, which requires little else but the wings themselves to be spread, to be enabled by its buoyancy to sustain the weight of the body in the atmosphere. In the female, the pouch is not near so large ; in other respects she resembles the male, except that the plumage is more obscure, and the neck and under parts of a dirty white.

The length of the male, including the long forked tail, is three feet ; expanse of wing, eight ; the air pouch, red ; the general plumage dark umbre brown. Its motions in the air are very graceful and sweeping. It is said to build in rocks or tall trees ; but of its nidification little is correctly ascertained.

Here we close this survey of the feathered tribes. Our aim has been to sketch a brief, but, we trust, not valueless outline of ornithology, introductory to a more elaborate study of that delightful branch of natural history. In doing this, the attention of the reader has been directed to a consideration of natural groups or families; that is, associations of species, allied to each other by certain definite characteristics; and these groups, thus established, we have endeavoured to illustrate by the most apt and striking examples. Not that any pretension has been made to follow out these groups through all their ramifications, trace out all their alliances, or anatomize all their minutiae. It is true, that upon these and other points of equal interest, much more might have been said, but in so doing all moderate bounds must have been exceeded; while those for whom this introductory work is designed would have been confused and perplexed. It is enough to have communicated the rudiments of the science of Ornithology to the intelligent inquirer, and we shall be satisfied if a solid foundation has been laid for future study, and an impulse given to pursue it.

With regard to the system of arrangement pursued in the present work, all the peculiar theories of any naturalists, however eminent, have been expressly avoided, except in as far as they subserve the present design; little solicitude is here shown about particular views, and points of minor importance, so that the reader might but obtain a glimpse, however superficial, of those laws of order and harmony which are "part and parcel" of nature. Let it not be supposed that systems are to be undervalued; they are indispensable to our efficient study of any portion of the works of creation; for so various and so multiform are these works, that without arrangement, by which to follow nature, and unthread the maze, we should be lost amidst a wilderness of causes and effects, laws and modes; we should be led into a thousand errors; we should misdirect our attention, and, as it were, weaken our powers by a diffuse and indeterminate application of them; we should naturally associate together things which have no relationship, and disjoin the closest alliances. Hence the

value of a system, hence its necessity to finite minds ; yet, after all, it is the means, and not the end,—the key to knowledge, and not knowledge itself.

Connected with a display of the harmonies of nature, there has also been another and most important object in view in our present labours ; namely, to lead the reader through the glorious and beautiful works of creation, pregnant with proofs of design, and of the adaptation of effects and causes, carried out to a minuteness which makes us feel how little we truly know, up to the God of all power and might, whose dominion is for ever and ever. But that God of all power and might, by whom all things were made, cannot be contemplated by the christian (through whatever sources the mind may be directed to Him) only as his Creator ; he will feel that God is his Redeemer ; he will call to mind his state of condemnation under the law, which he has transgressed, and rejoice in a covenant ordered in all things and sure, a covenant founded in oaths and promises and blood, by which he may find pardon and acceptance through the sufferings and merits of that Messiah who died that we might live, and “ rose again for our justification.”

Thus, to the christian, will Nature be the handmaid of Religion, and thus will all our studies of the Divine works lead us to Him, who is the Alpha and Omega, the Beginning and the End ; who “ spake, and it was done ;” who “ commanded, and it stood fast.”



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